

Potential effect of teacher quality on learner achievement: A case of secondary school technical subjects in Mwenezi District of Zimbabwe

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Abstract

The paper presents findings of a qualitative case study research that was conducted to explore the potential effect of teacher quality as a factor in learner performance in technical subjects in Mwenezi district of Masvingo Province in Zimbabwe. This study was motivated by the learners' poor pass rates in technical subjects at Ordinary Level in the district. The study looked at the potential effect of teacher quality with respect to teacher experience, qualifications and age, as a barometer to determine learner performance in technical subjects in secondary schools. Four of the 45 secondary schools in the district were selected to participate in the study. Semi-structured interviews were held to generate data from four school heads and four heads of department while focus group discussions were used to gather data from 48 learners. Data were analysed through thematic coding. Findings of the study proved to be a mixed bag. On the one hand teacher experience was found to be a predictor of learner achievement, while on the other hand teacher qualification had a minimal impact on student outcomes in technical subjects in the district. The study recommends that The Ministry of Primary and Secondary Education consider motivating experienced teachers in remote areas so as to improve the pass rate in these areas as well as stimulate teachers to prioritise their core business of teaching learners at the expense of their private business to augment their salaries.

Keywords: *Teacher Quality, Learner performance, Technical Subjects, Secondary School*

Introduction and background

Learner achievement in schools and universities determines the quality and human capital status of a nation and its development (DFID, 2007). A nation with a learned citizenry is an empowered nation where problems such as poverty, ignorance and poor health care are a thing of the past. To that end, learner performance in schools remains a top concern for educators and their partners world-wide (Siachifuwe, 2017). A growing body of literature contends that a number of factors affect learner achievement in schools (Waseka, Simatwa & Okwachi, 2016; Musau & Abere, 2015). Factors such as learners, teachers, family, school and peer factors, to name but a few, are some of the variables that affect learner achievement in schools (Odumbe, Enose & Avedo, 2015). Hence these factors, if properly unmasked and unpacked, could be dealt with in the context of ensuring that they do not inhibit the teaching and learning activities in the school system.

Teachers are the heartbeat of pedagogy. Waseka et al. (2016) note that teachers are facilitators of the learning process and they are unique in that they are architects, managers, as well as engineers of pedagogy. It goes without saying that teachers have a bearing on learner performance. The quality of a teacher is measured on the basis of learner achievement (Waseka et al., 2016). In support of the foregoing, Jega and Julius (2018) report that some major factors that affect learner achievement include teacher efficiency and learner economic background. It has been noted that efficiency of teacher progress is evident in the first three years of the teacher's educational career and gets even better between the first three to five years of experience but no considerable improvement takes place thereafter (Bamidele & Adeloka, 2017). Corroborating this view, Kimani, Kara and Njagi (2013) indicate that the levels of education and teacher experience are 'not statistically significant' to learner achievement. This can be attributed to the fact that, after five years, the teacher would have covered a lot in the field of education, thereby improving learner performance. In the context of this study, quality technical subject teachers are qualified, experienced and mature teachers who have been in the classroom for at least five years.

Researchers agree that teacher quality does affect learner outcomes (Weaver, 2019; Maphoso & Mahlo, 2015; Kasiisa & Tamale, 2013). In agreement, studies on the effect of teacher qualification on student performance show that student achievement increases with teacher qualification but reveal that students record poor performance where teachers are newly qualified (Rice, 2010; Aliyu, Yashe & Adeyeye, 2013). Similar findings were revealed by Alufohai and Ibhafidon (2015) when they found that experienced teachers performed better in English Language than their less experienced counterparts. Thus, this study explores whether the success that was revealed in English Language with teacher experience, qualification and age is also obtainable in technical subjects.

The district under study had 45 secondary schools consisting of four mission, one government, fifteen satellite and twenty-five registered rural day secondary schools. The schools were manned by 60 technical subject teachers, 15 were university graduates, 21 were diploma holders while 24 had national certificates. A snap survey of four secondary schools in the district also revealed that learner performance in technical subjects was low. It is against this backdrop that the researcher was motivated to carry out a study on the potential

effect of teacher quality on the performance of learners in technical subjects in Mwenezi District of Zimbabwe.

Statement of the problem

The paper examines the potential effect of teacher quality on learner achievement in secondary school technical subjects in Mwenezi District of Zimbabwe. The focus of the study was to explore the extent to which the quality of teachers such as their qualification, experience and age predict learner achievement in technical subjects in the district.

Research Questions

The following research questions guided this study:

- To what extent does teaching experience affect learner achievement in technical subjects in secondary schools in the district?
- How does teacher qualification affect learner performance in technical subjects in the district?
- To what extent does teacher's age affect learner performance in technical subjects in secondary schools in the District?

Literature review

Teacher experience

Different researches revealed different findings on the effect of teacher experience on learner outcomes in schools (Kimani, Kara & Njagi, 2013; Hanushek, Piopiunik & Wiederhold, 2018; Rice, 2010; Adeyemi, 2010). Some studies contend that experience has a bearing in learner achievement (Mokua, 2010; Papay & Kraft 2015) while others revealed that experience is not a predictor of student achievement (Kimani, Kara & Njagi, 2013). According to Mokua (2010) inexperienced teachers are those in the first three to five years of their teaching career. In the Zimbabwean context a non-degreed teacher becomes senior after four years of service while a graduate teacher becomes senior after two years. Some studies on the effect of teacher experience on learner success found that learner outcomes improve rapidly after a teacher gains the necessary teaching experience spanning for more than five years (Papay & Kraft, 2015). It stands to reason that experienced teachers can use skills and experience acquired to draw up programs of work, sustain their efficiency and fine-tune them accordingly for the benefit of the learner, thereby improving learner outcomes.

Growing bodies of research studies contribute to the belief that quality teaching is measured through the level of teachers' subject matter aptitudes, such as teaching skills which are acquired over a period of time (Jega & Julius, 2018; Hanushek et al., 2018). However, other researchers argue that the most experienced teachers are often less effective than the less experienced ones (Kimani, Kara & Njagi, 2013). But Moqua (2010) clarifies that experienced teachers gain interpersonal skills by relating with learners, colleagues, inspectors as well as parents. This creates the oneness amongst teachers which is very healthy in the enhancement of learner achievement in schools. Based on the foregoing, experience could both positively or negatively impact on learners' overall performance and achievement in schools.

Teacher qualification

Qualified technical subject teachers are critical in improving the lives of communities by enhancing efficiency and access to resources (Bamidele & Adeloka, 2017). Qualified teachers, according to Musau and Abere (2015), are those with a teaching diploma, certificate or bachelor's degree from an institution recognised by the state. All qualified teachers are perceived to bring about quality education in schools (Waseka et al., 2016). Several researchers are of the view that qualified teachers perform better than their unqualified counterparts (Mullis, Martin & Loveless, 2016; Musili, 2015). However, other studies have a different view on the effect of teacher qualification on learner performance in schools. To support this view Kiman, Kara & Njagi (2013) said that teachers' educational level is not positively connected to learner outcomes in schools. Their major findings showed that age, gender and professional qualification had no bearing on learner success in secondary schools in Nyandarua County of Kenya. Although different studies have shown different findings on teacher qualifications, this study seeks to establish the effect of teacher qualification on learner achievement in technical subjects in the schools in Mwenezi district.

As the debate on potential effect of teacher qualification on learner achievement rages on, a recent study by Irvine (2019) seems to suggest that there is no agreement on the association between teacher qualification and learner results. Rice (2010) found that teacher qualifications in terms of degrees were related to learner outcomes. In support, Shuls and Trivitt (2015) echoed the same view that advanced teacher cognitive abilities in Mathematics were linked to advanced learner scores. On the contrary, a research by Jaime (2008) on the

effect of teacher experience and teacher degree levels showed that teacher qualifications had no substantial association with learner attainment. It follows that research findings on the effect of teacher qualification have not been conclusive and further studies need to be undertaken in technical subjects so as to size up the effect of teacher qualification with a view to add on the existing literature.

A research by Waseka et al. (2016) on the influence of teacher factors on students' academic performance in Kenyan secondary schools also brought a new dimension when they found out that learner success was not only dependent on teacher qualification but also on other critical factors such as effect of school heads, teachers and government policies. This can be explained by the fact that although learner achievement was affected by teacher factors, other factors such as school management, and resources also play an important role. This study however intends to find out how teacher quality impacts on learner achievement in technical subjects in the district under study.

Another dimension on teacher education policy also appears to affect learner performance in schools. Zvobgo (1997) points out that no system of education can function without a sound and well-planned teacher education policy. Irvine (2019) concurs with the idea that teacher training policy has a bearing on learner success as preparation and certification have a robust correlation with learner success in the school system. Most countries, Zimbabwe included, have doubled their efforts in improving teacher education as well as raising the minimum qualification bar for one to be trained as a teacher. The Presidential Commission of Inquiry and Training (Nziramasanga, Commission, 1999) recommended that for a teacher to teach in Zimbabwean secondary schools he or she should have at least a university degree. However, this recommendation has not been implemented by the time of the current study as the minimum qualification for a teacher remains a Diploma. On the other hand, some researchers are of the view that degrees do not affect learner achievement (Kiman, Kara & Njagi, 2013) and it would be immature to raise the qualification threshold for now in Zimbabwe.

There are strong arguments to the effect that acquiring additional qualifications affects learner academic achievement (Zhang, 2008). The arguments posited by the researcher indicate that additional qualification such as university degrees do predict learner academic achievement in schools. Irvine (2019), however, found that acquiring a degree did not affect learner achievement in any way. This contrast in research findings could be caused by the

fact that other factors such as mentoring and professional guidance of the lowly qualified teachers to boost their teaching prowess, thereby performing at par with their graduate peers. It was noted, however, that in cases where degree holders performed better than the non-degreed teachers, the graduate teachers would have been assigned to teach a class of highly gifted learners hence their performance appeared better than that of their counterparts (Papay & Kraft, 2015). The effect of qualification on learner performance was also found not to be conclusive because different researchers had different findings, hence the need for further studies on this aspect as in the current study which focuses more on technical subjects. Since there is inconclusive evidence in existing literature, the research sought to explore perceptions of participants on the potential effect of teacher quality as a factor in learner performance in technical subjects in Mwenezi District.

Teacher's age

The effect of the teacher's age on learner achievement is a controversial issue which requires further research. A study by Kimani et al. (2013) on teacher factors influencing students' academic achievement in secondary schools in Kenya shows that learners taught by career-beginning teachers achieved better scores than the more experienced teachers. This could be a result of the fact that younger teachers are more zealous and would want to make a lasting impact on their newly acquired career.

The age of the teacher, according to this study, is one of the attributes of teacher quality that need to be explored in line with student achievement at secondary level. Teachers' age affects learners' confidence in the teacher and once learners lose confidence in their subject teachers, then problems will definitely occur (Moqua, 2010). Mokua further asserts that experienced teachers confidently interfaced with students on several occasions. Martin and Smith (1990) bring in a new dimension that middle aged teachers perform better than both the younger and the older teachers. This study sought to establish the effect of technical teacher's age as factor in learner performance in secondary schools in the district.

Methodology

A qualitative approach was adopted to identify the perceptions of School Heads, Heads of Departments(HODs) and learners in technical subjects on the potential effect teachers' experience, their qualification and age have on learner achievement in Mwenezi district.

approach was suitable for this study as it allowed the researcher to listen to the views of the participants on the effect of teacher quality on learner achievement (Christensen, Johnson & Turner, 2015). A case study design which offers the exclusive advantage of getting into contact with respondents in real life situations, allowing researchers to appreciate ideas more evidently than basically presenting them in abstract theories and ideas was adopted (Cohen, Manion & Morrison, 2011). The case study design enabled the researcher to gain an understanding of the participants' views on teacher quality and learner achievement in technical subjects in their natural setting (McMillan & Schumacher, 2010), in this case, at their respective schools in the district.

Participants and setting

The sample consisted of four school heads, four H.O.Ds of technical subjects and forty-eight learners from the technical subjects department (12 from each school) purposively sampled from the forty-five secondary schools in the district constituting a good number for a focus group discussion. Forms two to four learners took part in this study because it was felt that they were sources of rich information needed in the study because they had been at school for a long period than the Form Ones (Cohen, Manion & Morrison, 2011). Four learners per form, from Form two to four were selected to take part in the study so that each form and sex were equitably represented.

Instrumentation

Semi-structured interviews and focus group discussions were used to gather data on the effect of teacher quality on learner outcomes in secondary schools in the district. The semi-structured interviews were used with school heads and HODs while focus group discussions were conducted with learners from the technical subject department. A semi-structured interview has the advantage that the researcher can probe for more information when he/she needs clarity on certain information (Best & Kahn, 1993). A focus group discussion focuses on group interviews for clearly defined topics and interface discussion of participants (Saunders, Lewis & Thornhill 2012). In this case, it was used to generate data from twelve learners per school on their perception of young teachers in the district under review. Learners from two groups of boys and girls were randomly sampled so that each Form had four learners, two boys and two girls to make them twelve per school in total. Questions from both the interviews and focus group discussion solicited data about the effect of teacher's,

experience, qualification and age on learner achievement. A situation where similar questions were asked using different tools contributed to methodological triangulation which ensured credibility of the findings (Gray, 2009).

Procedure

The researcher made appointments with the respective school heads on the dates and time each station would be visited for the data gathering stage. The interviews were carried out with the school heads and the HODs while the focus group discussion was done with the learners at the very end by the researcher. The interview sessions were recorded, and participants were made aware of this process for ethical reasons. The interview took about forty-five minutes while the focus group discussion took about one hour. The data collection exercise was done during general work time so that no learning time was lost due to this process.

Data presentation and analysis

Research findings were presented through thematic coding from the research questions. The qualitative data from focus group discussion and interview guide were transcribed, coded and organised into various themes (Cohen et al., 2011). Triangulation was achieved through the use of several tools in the data gathering process.

Results

The study explored the potential effect of teacher quality as a predictor on learner achievement in technical subjects in secondary schools in Mwenezi District. Responses from the semi-structured interviews as well as focus group discussion were analysed and data were categorised into different themes that emerged from research questions. Three categories emerged from the themes and were presented as follows: The extent to which teacher's experience affects learner achievement in secondary schools; the effect of qualification on learner performance and learners' perceptions on how teacher's age affects learner outcomes in technical subjects at secondary schools, in the District.

For purposes of identification and anonymity of participants, pseudo names were used on teachers' experience, qualification, age and on learners for the focus group discussion. On

school heads, letters A to D were used while numbers 1 to 4 were used to represent HODs for the technical subjects who participated in the study.

The extent to which teacher experience affected learner outcomes

On this aspect many participants felt that experienced teachers were more effective than their less experienced counterparts in technical subjects in the district.

In the focus group discussion the following answer featured more frequently than any other;

Mr. Pandasvika (experienced teacher) takes Technical Graphics, he is very good and patient, in explaining difficult concepts. Most of us excelled in the mid-year examinations this year in his subject (Jane, FGD 3).

The school head B gave the following answer:

Subjects manned by less experienced teachers have low percentage pass rates when compared to those subjects being taken by more experienced teachers. Less experienced teachers have a lot to learn in the teaching exercise hence their examination results are low when compared to the more experienced ones.

School head A had this to say on teacher experience:

At this school, technical subjects are manned by less experienced teachers and record low pass rates when compared to those subjects being taken by experienced teachers. It's difficult to retain experienced teachers at Satellite schools where school infrastructure and other resources are scarce. Once [teachers are] deployed to this school they will immediately seek transfers to schools where road network, hospitals, taped water, phone connectivity, and related technological gadgets are available.

School head D responded:

This is a boarding mission secondary school which is linked to major roads in the district hence staff turnover is very low. Many teachers do not even apply for promotion so we don't have a problem regarding inexperienced teachers because most of them are highly qualified. We even have a number of teachers with masters' degrees [here] and as a result our pass rate in technical subjects is always high, at least 65% every year.

School head C said that: *Performance of teachers is affected by a number of factors not only qualification.* When probed further the head C explained:

Some people are born teachers while others have challenges such as failing to clearly articulate issues. Some teachers cannot clearly explain even if they have the content.

HOD 4 had a different view on the causes of failure at his school. He thought that failure was as a result of lack of school resources.

Some of the teachers at this school are experienced including those in the Technical Department but results are poor when compared to the registered schools in the district. Learners don't perform well because the school is a Satellite and has no resources.

HOD 3 lamented:

Out of the five technical subjects' teachers at this school, the one taking Agriculture is the most experienced and is quite senior. His Ordinary level results are also good at least better than any other practical subject in the school.

Effects of teacher qualifications on learner outcomes in technical subjects in the district

Most participants were of the view that higher qualifications did not necessarily impact positively on learner outcomes but unless of course the teacher is experienced. Some non-graduate teachers in the schools that participated in the study outperformed their graduate counterparts in the teaching of technical subjects in the district. The following were responses by different participants in the study:

The best teacher in technical subjects at this school is a non-graduate. He has a history of producing very good results in his teaching career. Although we have graduate teachers at the school, some with Masters Degrees but this does not translate to student success (HOD 1).

One graduate teacher at this school has a record of producing varying results, depending on the learner aptitudes. The school screens learners at Form One on the basis of their Grade Seven examination results. When allocated to best performers

then he produces good results that year, but when he has a class of low achievers then the results will not be as good (School Head C).

In one of the FGD it was revealed that highly qualified teachers do perform well.

Mr. Jombo (highly qualified teacher) is a good teacher. He took us for Textile Technology and Design last year and we performed well in her subject in the mid-year examinations. As a class, we are interested in pursuing our studies in the subject up to Tertiary level (Sibongile FGD 4).

School head A had this to say on effect of teacher qualification to learning:

From experience, graduate teachers do not always perform better than non-graduate teachers. Student success is based on the teacher's commitment to duty and his/her methods of giving classroom instruction, his/her clarity when explaining concepts and, most importantly, his/her ability to research on subject content.

Excerpts from participants' responses above reveal that teacher qualification does not necessarily positively affect learner achievement in technical subjects.

Effect of teacher's age on learner achievement in technical subjects in Mwenezi district

Presented in this section are excerpts of participants' views on the effect of teacher's ages on learner achievement in the district at secondary level. Participants were of the view that young teachers were more competent in the discharge of their duties, thereby impacting positively on learner outcomes. Learners perceived young teachers as more hard working and receptive when compared to old teachers while school administration was of the view that old and experienced teachers perform better than the youth.

Douglas from a FGD 2 said:

Miss Moyo (young teacher) is very energetic, positive, knowledgeable and helpful, we benefitted very much from the Building Technology and Design lessons last year when she took our class in the subject. Although Mr. Madhlira (old teacher) is equally good but he tended to concentrate on his personal business (family shop) at the expense of his school work.

As learners we welcome teachers who have a passion for their work and those that consider our problems and concerns seriously. Mr Chademana (young teacher) is one such teacher who works hard and will make sure that we all understand his subject Most older teachers seem not serious with their work for example Mrs. Teta spends most of her time selling sweets. (Zebadiah FGD 1).

Only one participant had different opinion on old teachers and she had this to say:

My observation is that teacher Chikuvadze (old teacher) produces good results. He is just good and we are told he is a Zimsec [Ordinary Level] Marker (Chipo FGD 2).

But Sinikiwe from FCD School 4 Teacher said:

Miss Chirova is the youngest at this school but she is good she loves her work, marks the books in time and assists us in every way possible and has a good sense of humor.

Discussion

The study explored the views of school heads, HODs and learners on the effect of teacher quality as a factor in learner performance in technical subjects in Mwenezi District of Zimbabwe with respect to teacher experience, qualifications and age. Findings indicate that experience has a bearing on learner performance in technical subjects in the secondary schools in the district. This view is in line with findings in the literature review (Mokua 2010; Jega & Julius, 2018) which posit that experienced teachers have some professional skills that guide them to some professional judgments that lead to improved learner achievement, which the inexperienced teachers lack. A handful of participants though showed that experience does not have any effect on student performance and this in line with Zhang (2008) who revealed that there was no statistical difference between performance of experienced and novice teachers. This study has shown that experience is a factor in learner performance in technical subjects in the district at secondary level.

Teachers at mission boarding and Government schools who participated in the study performed better than those from satellite and registered day schools in the district. This was so because the former schools had low staff turnover, adequate resources and were mostly manned by experienced teachers who even shunned promotion. This is in sync with Sithole's

(2017) finding which indicated that satellite schools in Matabeleland North province of Zimbabwe had no adequate teaching and learning resources thereby hampering teacher motivation to deliver in class. The study revealed that teachers in satellite schools are always in transit to established schools hence are often manned by inexperienced teachers leading to low pass rate in Technical subjects in these schools.

The current study also showed that additional qualifications such as acquiring Masters degrees did not automatically mean an improvement on learner achievement in technical subjects in the district. Teachers with high university degrees did not necessarily perform better than those with bachelor's degrees. Some non-graduate teachers with experience were said to perform better than teachers with high qualification but less experience. Similar findings were observed in the literature review which states that teacher qualification without experience was not in any way affecting learner outcomes in schools (Jaime, 2008; Kiman et al., 2013). The study is in contrast with the Nziramasanga Commission's (1999) recommendation which indicated that the minimum qualification for teachers should be at least a bachelor's degree. However increasing the minimum teacher qualification to a bachelor's degree would improve the rating of the education standards comparative to other countries in the Southern Africa region.

Although the school administration (school head and HODs) showed that experienced teachers performed better than the less experienced teachers, students were of the view that younger teachers performed better than older teachers. They said that younger teachers are passionate about their job, competent in the discharge of their duties. Some older teachers were said to be pre occupied with their private businesses such as selling sweets at the expense of their core duties of teaching. The findings of this study were in contrast with Jega and Julius's (2018) findings that indicated that older teachers performed better than the younger teachers. The difference in findings of the current study and that of Jega and Julius's (2018) can be due to differences in teacher's remuneration. In cases where teachers are well paid old teachers can be motivated but in cases where teachers are poorly salaried then they will not be committed to their duties as shown by this study.

The fact that majority students who took part in the study felt that older teachers tended to concentrate on their private projects such as supplementing their income through selling some wares such as sweets to supplement their meager income was in agreement with a research by

Alufohai and Ibhafidon (2015) who found that learners taught by teachers between 21 and 34 years of age performed better than those taught by those who are around 49 years. In this research teachers from mission schools were very senior due to low staff turnover but performed better than the younger teachers. This is in line with Martin and Smith (1990) who said that middle aged teachers perform better than younger and older teachers. Thus, teachers at well-resourced schools are more motivated to perform regardless of their age and hence perform well.

Conclusion

The current study looked at the potential effect of teacher quality as a factor in determining learner performance in technical subjects in Mwenezi District. The study looked at teachers' experience, qualifications and age. The research findings revealed that teacher experience affected learner achievement at secondary school level. Older teachers in satellite and rural day secondary schools without resources performed more poorly due to high staff turnover when compared to teachers at boarding and mission secondary schools. Additional qualifications after the bachelor's degree were found not to have much influence on learner achievement as long as there was no adequate experience. Students who took part in the study revealed that young teachers were more competent when compared to old teachers who would spend much of their time supplementing their meager salaries through selling some wares such as sweets.

Recommendations

The study recommends that incentives be awarded to teachers working in rural and remote secondary schools such as Mwenezi District and other places so that experienced teachers are lured to stay in such parts of the country thereby benefitting learners in these areas. Once experienced teachers are deployed to these schools for longer periods, learners are bound to succeed because this research has shown that experienced teachers perform better than the less experienced teachers.

The study also recommends that the Ministry of Primary and Secondary Education should consider assisting satellite and rural secondary schools with teaching resources. This could be done through engaging private players. Resources shortage was found to be a factor inhibiting learner achievement in technical subjects in the district.

Finally, the study recommends that the Ministry of Primary and Secondary Education should improve teachers' conditions of service so that they don't spend most of their time supplementing their income at the expense of teaching.

References

Adeyemi, T. O. (2010). *Influence of teachers' teaching experience on students' learning outcomes in secondary schools in Ondo State*. Department of Educational Foundations & Management, University of Ado- Ekiti, and Ado- Ekiti, Nigeria.

Aliyu, U.A, Yashe, A. and Adeyeye, A.C. (2013). Effects of teachers' qualifications on performance in further mathematics among secondary school students. *Journal of Mathematics Theory and Modeling*, 3(11), 140-146.

Alufohai, P.J. and Ibhafidon, H. E. (2015). Influence of teacher's age, marital status and gender on students' academic achievement. *Asian Journal of Educational Research*, 3(4), 60-66.

Bamidele, A. D. and Adekola, F. F. (2017). Effects of teacher's qualifications and teaching experience on students' academic achievement in basic science in junior secondary school. *International Journal of Education and Evaluation*, 3(2), 1-9.

Best, J.W. and Kahn, J.V. (1993). *Research in education*. (7th Edition). London: Allyn and Bacon.

Christensen, L.B., Johnson, R.B. and Turner L.A. (2015). *Research methods, design and analysis*. Essex: Pearson Education Limited.

Cohen, L., Manion, L. and Morrison, K. (2011). *Research methods in education* (7th Ed.). London: Routledge.

DFID (2007). *Technical and vocational skills development*. Practice Paper, April 2007, London: DFID.

Gray, D.E. (2009). *Doing research in the real world* (2nd Ed). London: SAGE Publications.

Hanushek, E., Piopiunik, M., and Wiederhold, S. (2018). The value of smarter teachers: International evidence on teacher cognitive skills and student performance. *Journal of Human Resources* (in press). <https://doi.org/10.3368/jhr.55.1.0317.8619r1.abstract> accessed 29-06-2020.

Irvine, J. (2018). Relationship between teaching experience and teacher effectiveness: Implications for policy decisions. *Journal of Instructional Pedagogies*, 22, 1-19.

Jaime, C.D. (2008). The effect of teacher experience and teacher degree levels on student achievement in mathematics and communication arts. PhD Thesis, Baker University.

Jega, S.H. and Julius, E. (2018). The effects of teachers' academic qualification and experience on students' achievement and interest in mathematics in Kebbi State. *International Journal of Advanced Academic Research, Arts, Humanities and Education*, 4(6), 15-29.

Kasiisa, F. and Tamale, M.B. (2013). Effects of teachers' qualifications on the pupils performance in primary school social studies: implications on teacher quality in Uganda. *International Journal of Innovative Education Research*, (3), 69-75

Kiman, G.N., Kara, A. M. and Njagi, L.W. (2013). Teacher factors influencing students' academic achievement in secondary schools in Nyandarua County, Kenya, *International Journal of Education and Research*, 1, 1-14.

Maphoso, L.S.T. and Mahlo, D.(2015).Teacher qualifications and pupil achievement. *Journal of Social Science*, 42 (1.2), 51-58.

Martin, K. J and Smith, L. R. (1990). Effects of teachers' age and gender on student perception. *Educational Resources Information Centre (ERIC) U.S.A.*

McMillan, J.H. and Schumacher, S. (2010). *Research in education: Evidence-based enquiry* (7th Ed). New Jersey: Pearson Education.

Mokua, B. (2010). An evaluation of the curriculum development role of teachers as key agents in curriculum change. Published Master's Thesis, North-West University (Potchefstroom Campus). RSA.

Mullis, I. V. S., Martin, M. O. and Loveless, T. (2016). *20 years of TIMSS: International trends in mathematics and science achievement, curriculum, and instruction*. Chestnut Hill, MA: TIMSS& PIRLS International Study Center, Boston College. Retrieved from https://www.iea.nl/sites/default/files/2019-04/TIMSS_2015_20-years-of-TIMSS.pdf (18-02-2021)

Musau, L.M. and Abere, M.J. (2015). Teacher qualifications and students' academic performance in science and mathematics and technology subjects in Kenya. *International Journal of Educational Administration and Policy Studies*, 7(3), 83-89.

Musili, A.M, (2015), *Influence of teacher related factors of students' performance in Kenya certificate of Secondary education in public Secondary schools in Kibwezi sub-county*. Kenya: South Eastern Kenya University.

Odumbe, G. A., Enose, M.W.S. and Ayedo T.M.O. (2015). Factors influencing student academic performance in day secondary schools in Kenya. Case study of Magori Sub County. *Greener Journal of Education Research*, 5(3), 78-97.

Papay, J. and Kraft, M. (2015). Productivity returns to experience in the teacher labour market: Methodological challenges and new evidence on long-term career improvement. *Journal of Public Economics*, 130, 105–119.

Nziramasanga, C. T. (1999). *Report on the presidential commission of inquiry into education and training. (August 1999)*. Harare: Government Printers.

Rice, J.K. (2010). *The impact of teacher experience examining the evidence and policy implications*. Washington: Urban Institute.

Saunders, M., Lewis, P. and Thornhill (2012). *Research methods for business students, 6th Edition*. Essex: Pearson Education Limited.

Siachifuwe, M. (2017). Teacher based factors influencing academic performance among learners in open learning classes at Twin Palm secondary school, Lusaka, Zambia. *International Journal of Humanities Social Sciences and Education (IJHSSE)*.4(12), 96-101.

Sithole, F. (2017). Strategies to enhance teacher motivation in satellite secondary schools in the resettlement areas of Matabeleland north province, PhD Thesis, Zimbabwe, Zimbabwe Open University.

Shuls, J. and Trivitt, J. (2015). Teacher effectiveness: An analysis of Licensure Screens. *Educational Policy*, 29 (4), 645-675.

Waseka, E.L., Simatwa, E.M. and Okwachi, T. (2016). Influence of teacher factors on student academic performance in secondary school education. A case of Kakamega County in Kenya. *Greener. Journal of Educational Research*, 6(4), 151-169.

Weaver, J. (2019). Teacher factor and student achievement as measured by the ACT assessment & subsequent teacher perception of those factors. *Electronic Theses and Dissertations*. Paper 3540. <https://dc.estu.edu./etd/3540>

Zhang, D. (2008). *The effects of educational level, teaching experience and behaviour on student science achievement*. Utah State University.

Zvobgo, R. J. (1997). *State, ideology and education*. Gweru: Mambo Press.