

Teacher Qualifications and Pupil Academic Achievement

L. S. T. Maphoso¹ and D. Mahlo²

¹*Department of Psychology of Education, University of Limpopo, South Africa*

²*Department of Inclusive Education, University of South Africa*

E-mail: ¹<maphosols@sabc.co.za/thitshere@vodamail.co.za>, ²<mahlofd@unisa.ac.za

KEYWORDS Teacher. Academic. Experience. Boarding Schools. Qualification

ABSTRACT The present research seeks to investigate if teacher qualifications differ significantly among learners in boarding and in non-boarding schools and if they have significant relationship with academic achievement among Grade 12 learners of the Capricorn District in the Limpopo Province, South Africa. A simple random sample was drawn from the population of 339 schools, comprising of 51 principals, 158 teachers and 290 learners from 51 schools. The instrument used to collect data was the School Environmental Questionnaire (SEQ) to determine whether the school was boarding or non-boarding, along with the qualifications of teachers. The Capricorn District Academic Summary Report of the Grade 12 results collected data on academic achievement. The t-test results showed no significant difference in qualifications of teachers between boarding and non-boarding schools and no significant difference between low and high achieving schools in qualifications of teachers. The conclusion is teacher qualification is not the sole contributor in academic achievement.

INTRODUCTION

There is growing interest in the professional development of educators as the demands, expectations, and requirements of teacher education increasingly come under scrutiny (Louhran 2014). What the teacher does, influences, the whole process of learning. Effective teacher produces better performing students (Akiri 2013). Van den Bergh and Roos (2014) maintained that professional development of teachers can be effective and sustainable, if certain conditions are met (Curwood 2014). Besides, the analysis of Van den Bergh and Roos (2014) suggested that the implementation of educational reforms, including reforms associated with technology integration and literacy education, is often dependent upon teachers' skills, values, and cultural models. While hiring of qualified teachers is encouraged for improvement of academic performance, theories from the study of Firestone (2014) caution that policies to remove ineffective teachers should not reduce autonomy or trust among effective teachers and that evaluations should provide teachers with useful feedback and policy makers with information on the conditions that facilitate good teaching.

Qualification of Teachers Between Boarding and Non-boarding Schools

Wahling (2014) encouraged the parents to send their children to boarding schools because

boarding schools offer unique teaching opportunities that come with particular advantages over more traditional school settings such as public schools or private schools. One of the obvious advantages is the qualification or the quality of the teachers that they employ. Heart Content of a Mama (2012) remarked that boarding schools are rigorous in their selection of staff and that most boarding schools require their teachers to have degrees in their specialist subject, and they have to go through a strict interview process to make sure they will fit in at the school. Some of the teachers even have post-graduate degrees in their specialized field and they are selected for the role because they are clearly passionate about what they are teaching. Canyonville Christian Academy (2010) commented that college counseling departments at boarding schools are generally well-staffed and taken quite seriously as the majority of boarding school faculty have advanced degrees in either education or another specialty. Kennedy (2014) is of the opinion that because teachers and staff in a boarding school function *in loco parentis* teachers take the place of parents literally and figuratively. *At boarding schools, most teachers have extra qualifications than the normal requirement. With this qualifications in handy at boarding schools, does it mean that their academic achievement will be better than those in non-boarding schools? Or is there any relationship between qualifications of teach-*

ers and academic achievement that seems to differ between the two types of schools?

The Quality of a Teacher

Dunlap and Frank (1996) maintained that all teachers must possess instructional/ intervention skills to maximise the learner's outcomes. Policies adopted by states regarding teacher education, licensing, hiring, and professional development may make an important difference in the learning and teaching and capacities that teachers bring to their work (Richardson 2008). In South Africa, the criteria for the recognition and evaluation of qualifications for employment in education based on the norms and standards for educators are stipulated in the National Education Policy Act (Act 27 of 1996). Cherian (1996) maintained that there is a significant correlation between teacher's knowledge and attitude towards Science.

The researchers demonstrated that the quality of a teacher is crucial in teaching and learning. For instance, Koedel (2007) found that variation in teacher quality is an important contributor to student achievement. Canale et al. (1996) investigated the relative importance of various college characteristics to students that influence their college choice and found that teacher attributes are the first that the applicants ranked higher in terms of importance among the list of college characteristics investigated. Buddin and Zamorro (2009) on the other hand, discovered that there are large differences in teacher quality across the school district, but measured teacher characteristics explain little of the difference. School fixed effects are strong determinants of student performance and according to Lai et al. (2011) these fixed effects are shown to be highly correlated with teacher qualifications. Teachers have powerful effects on reading and mathematics achievement, though little of the variation in teacher quality is explained by observable characteristics such as education or experience (Hanushek et al. 2005).

Qualifications of Teachers

The quantitative analyses of Richardson (2008) indicated that measures of teacher preparation and certification are by far the strongest correlates of student in reading and mathematics. The poor qualifications of teachers are a

major problem in African Schools (Baloyi 1996). Baloyi further mentioned that in the past, the South African education system reinforced the social structure by disempowering teachers and pupils alike. Teachers were poorly qualified, knew little about creative style of teaching and had few alternatives other than to cooperate with a conservative authoritarian system, and this restrictive environment encouraged an authoritarian teaching style (Engelbrecht et al. 1996). Even with the classroom space planned to maximise learning potential, child-centered, long range planning, and selected and sequenced learning materials, an uninformed teacher could still do his/her own thing while the children do none of theirs (Nash 1979). A teacher who is well trained and in command of his/her subject matter will be able to identify the weakness and strengths of his/her learner, thereby making learning and teaching simpler. To embark on a satisfactory and effective public education reform, it is essential that most human resources (teachers) be comprehensively and adequately developed (Jegede and Taplin 2000).

Empirical studies confirm relationships between qualifications of a teacher and learners academic achievement. Unanma et al. (2013) examined the relationship between Teacher's academic qualifications and academic achievement of Senior Secondary school Students in Chemistry and discovered that there is a positive relationship between the variables. This was endorsed by the findings of Adeyemi (2013) in the reports to analysis the performance of the English Language Teachers (ELTs) and Teachers with Formal Education (TFEs) at secondary level in public high schools. Adeyemi's results show that those students who receive instruction from the ELTs show better results in the final examinations as compared to those who receive input from the TFEs. Boyd et al. (2008) explored that improvements in teacher qualifications, especially among the poorest schools, appear to have resulted in improved student achievement. They further elaborated that estimating the effect of teacher attributes using a value-added model predict that observable qualifications of teachers resulted in average improved achievement. To assess whether or not there is a statistically significant difference in teacher qualifications that might help to predict the academic performance of middle school students on the mathematics portion of the Alabama Reading and Math

Test (ARMT), Richardson (2008) indicated that a significant relationship does exist between teacher qualifications and student achievement. Specifically, the findings revealed that students with mathematics teachers who had 5 or more years' experience performed better on the math portion of the Alabama Reading and Math Test (ARMT).

Ogbonnaya (2009) suggested that if all mathematics teachers have a degree, are specialized in mathematics or mathematics education and have more than five years teaching experience, the students' achievement in mathematics would likely improve. Richardson (2008) also concluded that if the teacher has a traditional secondary mathematics certification then students will tend to score higher on the ARMT compared to teachers with alternative certification.

Teachers Experience as Twin-factor in Academic Achievement

The twin factor of teacher's qualifications is teacher's experience. Clotfelter et al. (2014) are of the opinion that teacher's experience is consistently associated with achievement and these display a form of heterogeneity across students that may help explain why the observed form of teacher-student matching persists in equilibrium. This opinion is supported by Ogbonnaya's (2009) findings that indicated a significant positive relationship between students' academic achievement in mathematics and teachers' background such as teachers' qualifications and years of experience, especially from six years of teaching. Student achievement increases with teacher experience, but the linkage is weak and largely reflects poor outcomes for teachers during their first year or two in the classroom (Buddin and Zamarro 2009). Wong's (2013) analysis indicated that teacher's teaching experience matters more for reading than mathematics.

It is also not always obvious that teacher's qualifications make positive effect on academic achievement. This was evidenced in the work of Koedel (2007) whose study show that teacher's qualifications are almost entirely unable to predict value-added in learners performance. Kimani et al. (2013) concurred with the Koedel's findings as they discovered that teacher's professional qualifications and teaching experience were not significantly related to academic achievement. In examining whether teacher li-

censure test scores and other teacher qualifications affect high school student achievement, the results of Buddin and Zamarro (2009) also showed large differences in teacher quality across the school district, but measured teacher characteristics explain little of the difference in academic achievement. They discovered that teacher licensure test scores are unrelated to teacher success in the classroom. Similarly, student achievement is unaffected by whether classroom teachers have advanced degrees or not.

METHODOLOGY

The general aim of the study was to investigate the differences that exist in qualifications of teachers among boarding and non-boarding schools in the Capricorn District of the Limpopo Province, South Africa and if these qualifications of teachers have any relationship with academic achievement

Objectives

The objectives of this study are:

- ♦ To present studies related to the differences in teachers qualifications among boarding and non-boarding schools and on the effect of these qualifications on academic achievement.
- ♦ To present the findings of this research based on the relationship between teacher's qualifications and types of school on academic achievement and give conclusions and recommendations.

The aim and objectives gives rise to the following research questions:

- (a) Is there a significant difference in the qualifications of teachers between boarding and non-boarding schools?
- (b) Is there a significant difference between low and high achieving schools in the qualifications of teachers?

The above research question will be answered by the following hypotheses:

- H_01 There is no significant difference in the qualifications of teachers between boarding and non-boarding schools.
- H_11 There is a significant difference in the qualifications of teachers between boarding and non-boarding schools.
- H_02 There is no significant difference between low and high achieving schools in the qualifications of teachers.

H_2 There is a significant difference between low and high achieving schools in the qualifications of teachers.

Sampling

The sample was 51 schools selected from six areas, randomly selected from a population of 339 schools of the Limpopo Province’s Department of Education in the Capricorn District. The District was made up of six areas, with 10 of the 51 schools accommodating boarders, and the remaining 41 not (See Table 1). The sample of 51 principals, 158 teachers, and 290 learners were respectively selected from 339 principals, 4,915 teachers, and 144,518 learners in the district to participate in this research. The schools that participated were those that had written the matriculation examination of the South African Certification Council the previous year. All areas had, at least, one or more boarding schools, except the Zebediela Area, which had none (See Table1).

The School Environmental Questionnaire (SEQ) was used to establish whether the school

was a boarding school. The respondents to this section were the principals (See Table 2). Other items including the number of boarders and non-boarders, gender of learners and whether the principal is satisfied about the qualifications of teachers at the school.

The next section collected data about the number of teachers and learners the school had, as well as the qualifications of the teachers, where points/scores were allocated according to the level of qualifications of a teacher (See Table 3). No point was awarded to a teacher with only matric. The counting of the qualifications started at matric plus three years. Teachers with matric plus three years post matric were awarded one point, the ones with matric plus four years were two points, those with matric plus five years were three points and those with matric plus six years and higher were four points. The principal was given the opportunity to say if he/she is satisfied with the qualifications of the teachers at the school and any additional information he/she would like to add. The respondents answered items 1, 3, and 4 while the researcher worked out item 2.

Table 1: Sample of schools from the Capricorn District

Name of area	No. of schools	Schools participating			Percentage participation
		Non-boarding	Boarding	Total	
1. Bochum	74	6	1	7	8%
2. Konekwena	58	8	1	9	15%
3. Mankweng	59	7	3	10	12%
4. Mogodumo	53	6	3	9	17%
5. Polokwane	60	6	2	8	13%
6. Zebediela	34	8	0	8	23%
Total	339	41	10	51	15%

Table 2: Section 1 of the school environmental questionnaire (Type of school)

1. <i>Type of school</i>				
Name of school:				
Name of area:				
1.	Type of school		Boarding	Non-boarding
2.	Is it boarding or non-boarding?	Boarding	Boarding and Non-boarding	Non-boarding
3.	Number of boarders and non-boarders (write number next to appropriate block)		Boarders	Non-boarders
4.	Learners gender	All boys	All Girls	Boys and Girls
5.	Number of boys and girls	Boys		Girls
6.	Are you satisfied with the type of school?			Yes No
7.	Any additional information you would like to add:			

Table 3: Section 2 of the school environmental questionnaire (Qualifications of Teachers)

3 (a). <i>Qualifications of teachers</i>					
1. Level of teachers qualifications (Write number under appropriate column)	M	M+3	M+4	M+5	M+6 and above
2. Number of teachers who are qualified?	Equal or more than 50%			Less than 50%	
3. Are you satisfied with qualifications of teachers?	Yes		No		
4. Any additional information you would like to add:					

The questionnaires were forwarded to academics in the field of Research and Educational Psychology in the Faculty of Humanities of the University of Limpopo for evaluation, who confirmed that the contents of the questionnaire seemed to be relevant. Educators and research officials confirmed that the SEQ could measure the environment of the school and specifically its basic facilities.

RESULTS

The Capricorn District had a summary of the Grade 12 results for all its areas, each of which was submitted to the district office by the areas themselves, and in turn submitted to the Provincial Head Office. The researcher worked out the percentage passed with exemption per school, which represented the academic achievement. If a school had obtained a high percentage pass with exemption it had obtained high academic achievement.

Pilot Study

A pilot study was conducted before the schools closed for the winter vacations, and

Table 4: Sample of pilot study

S.No.	School profile			Participation				Total filled
	Name of school	No. of learner	No. of teacher	No. of principals	No. of learners	No. of teachers	No. of principals	
1.	Reholegile	927	36	1	7	4	1	12
2.	Mapelwana	514	12	1	8	2	1	11
3.	Manyong	350	8	1	3	1	1	5

Table 5: The qualifications of teachers between boarding and non-boarding schools

	N	Mean	SD	P-Value
Boarding	9	1.912	0.528	0.979
Non-boarding	40	1.906	0.561	

schools that took part were Reholegile High from the Zebediela area, Mapelwana High from the Mankweng area, and Manyong High in the Polokwane area. The principal, one teacher, and three learners completed the questionnaires (See Table 4). The outcome of the pilot study was that on the questionnaire, under the section asking "others?" the participants gave irrelevant answers so the question was changed to "Any additional information you would like to add?"

Statistical Analysis

This research used a t-test to determine if there was a significant difference in the qualifications of teachers between boarding and non-boarding schools. It also determined if there was a significant relationship between qualifications of teachers and academic achievement.

(a) Is there a significant difference in the qualifications of teachers between boarding and non-boarding schools?

To compare the qualifications of teachers between boarding and non-boarding schools, the t-test were used (See Table 5). It indicated that the p-value is greater than the 0.05 level of significance. The research hypothesis is there-

fore rejected. This research, therefore, proves that there is no significant difference in the qualifications of teachers between boarding and non-boarding schools. Teachers in boarding and in non-boarding schools have similar qualifications.

- (b) Is there a significant difference between low and high achieving schools in the qualifications of teachers?

The t-test compares the mean of the qualifications of teachers of high and low academic achievement schools (See Table 7). It indicated that the p-value is greater than the 0.05 significance level. As such, the test failed to reject the null hypothesis indicating that there is no significant difference between low and high achieving schools in the qualifications of teachers. This implied that whether teachers are more qualified or not, the output of the Grade 12 results for learners will not differ significantly.

DISCUSSION

All of the boarding schools under investigation have more than 50% qualified teachers while in non-boarding schools there are nearly three

percent of unqualified teachers (See Table 6). The researchers, based on the statistical analysis, conclude that the difference does not constitute a statistical significance. The difference might have happened by chance. There is high percentage of satisfaction on both types of schools about the qualifications of teachers.

It is worth mentioning that all the schools that scored lower in the Grade 12 academic achievement have more than 50% of teachers who are qualified whereas in the high performing schools 5% of the teachers are under-qualified (See Table 8). This finding is, however, not statistically significant to conclude that the qualifications of teachers have a relationship with Grade 12 academic achievement in the Capricorn district of the Limpopo Province Department of Education. This finding differs from the literature review, which maintains that the qualifications of the teachers influence learners' academic achievement.

CONCLUSION

This research revealed that there are no significant differences in qualifications of teachers

Table 6: Percentage response on the qualifications of teachers between boarding and non-boarding schools

Item	Response	Type	
		Non-boarding %	Boarding %
Q2. Number of teachers who are qualified	<50%	2.7	-
	≥50%	97.3	100
Q3. Are you satisfied with the qualifications of teachers?	No	19.4	12.5
	Yes	80.6	87.5

Table 7: Relationship between the qualifications of teachers and academic achievement

	N	Mean	SD	P-Value
Low academic achievement	27	1.9102	0.628	0.917
High academic achievement	19	1.8921	0.482	

Table 8: Percentage response on the qualifications of teachers between low and high academic achievement

Item	Response	Academic achievement	
		Low A.A %	High A.A %
Q2. Number of teachers who are qualified	<50%	-	5.9
	≥50%	100	94.1
Q3. Are you satisfied with qualifications of teachers?	No	14.8	26.7
	Yes	85.2	73.3

between boarding and non-boarding schools. There is also no significant difference in qualifications of teachers between schools with low and high academic achievement. The conclusion is that there is no statistically significant evidence that support that boarding school have teachers whose qualifications differ with those in non-boarding schools. This research also indicated that there is no relationship between qualifications of teachers and academic achievement of Grade 12 learners in the Capricorn District of the Limpopo Province in South Africa.

RECOMMENDATIONS

It is recommended that in hiring effective teachers, school management should not look only at qualifications of candidates' teachers. There are various factors that can be considered, such as the experience, age, gender, attitudes and social behaviour of teachers that may holistically attribute to students' academic achievement. There is no evidence of gain in sending learners to boarding schools with the intention that there are qualified teachers in such facilities, and that qualified teachers will contribute to academic achievement as this study revealed no such difference and relationship.

REFERENCES

- Adeyemi KJ 2014. Effect of Teachers' Academic Qualification on Students' Performance at the Secondary Level Rom: From <morehttp://www.academia.edu/346972/Effect_of_teachers_academic_qualification> (Retrieved on 22 March 2014).
- Akiri AA 2013. Effects of teachers' effectiveness on students' academic performance in public secondary schools, Delta State, Nigeria. *Journal of Educational and Social Research*, 3(3): 105-112.
- Baloyi DK 1996. *Career Development in High Schools: A Systemic Cross-cultural Perspective*. Masters Dissertation, Unpublished. Pretoria: University of Pretoria.
- Boyd D, Lankford H, Loeb S, Rockoff J, Wayckoff J 2008. The narrowing gap in New York City teacher qualifications and its implications for student achievement in high-poverty schools. *Journal of Policy Analysis and Management*, 27(4): 793-818.
- Buddin R, Zamarro G 2009. Teacher qualifications and student achievement in urban elementary schools. *Journal of Urban Economics*, 66(2): 103-115.
- Canale JR, Dunlap L, Britt M, Donahue T 1996. The relative importance of various college characteristics to students in influencing their choice of college. *The College Student Journal*, 30: 214-216.
- Canyonville Christian Academy 2010 Helping Parents Make Good Choices From< <http://www.private-school.org.nz/2010/11/09/hello-world-2/>> (Retrieved on 22 March 2014).
- Cherian L 1996. *The Attitude of Standard 10 Pupils Towards Science in Erstwhile Lebowa*. Doctoral Thesis, Unpublished. Sovenga: University of the North.
- Clotfelter CT, Ladd HF, Jacob L Vigdor JL 2014. Teacher-student matching and the assessment of teacher effectiveness. *Educational Evaluation and Policy Analysis*, 36: 83-111.
- Curwood JS 2014. English teachers' cultural models about technology: A microethnographic perspective on professional development. *Journal of Literacy Research*, 46(1): 9-38.
- Dunlap WP, Frank D 1996. Teacher education for today and tomorrow: General and special education. *The College Student Journal*, 30: 97-104.
- Engelbrecht P, Kriegler SM, Booysen MI 1996. *Perspective on Learning Difficulties: International Concern and South African Realities*. Pretoria: J.L. Van Schaik.
- Firestone WA 2014. Teacher evaluation policy and conflicting theories of motivation. *Educational Researcher*, 43(2): 100-107.
- Hanushek EA, Rivkin SG, Kain JF 2005. Teachers, schools, and academic achievement. *Econometrica*, 73(03): 417-458.
- Heart Content of a Mama 2012. 5 Reasons Why Boarding School Might be a Good Idea for Your Child. From <<http://www.heartscontentofamama.com/2012/10/5-reasons-why-boarding-school-might-be-a-good-idea-for-your-child.htm>> (Retrieved on 22 March 2014).
- Jegede O, Taplin M 2000. Trainee teachers' perception of their knowledge about expert teaching. *Educational Research*, 42: 287-308.
- Kennedy R 2014. Teaching in a Boarding School. From <<http://www.boardingschoolreview.com/articles/18>> (Retrieved on 22 March 2014).
- Kimani G, Augustine M, Kara L, Njagi W 2013 Teacher factors influencing students' academic achievement in secondary schools in Nyandarua County, Kenya. *International Journal of Education and Research*, 1(3): 1-14.
- Koedel C 2007. Re-Examining the Role of Teacher Quality in the Educational Production Function Study Provided by Department of Economics, University of Missouri in its series Working Studys with number 0708. From <http://economics.missouri.edu/working-studys/2007/wp0708_koedel.pdf> (Retrieved on 22 March 2014).
- Lai F, Sadoulet E, Janvry A 2011. The contributions of school quality and teacher qualifications to student performance evidence from a natural experiment in Beijing Middle Schools. *Journal of Human Resources*, 46(1): 123-153.
- Loughran J 2014. Professionally developing as a teacher education. *Journal of Teacher Education*, 65(4): 271-283.
- Nash C 1997. *The Learning Environment: A Practical Approach to the Education of the Three, Four, and Five-year Old*. London: Collier Macmillan.
- Ogbonnaya UI 2009. *The Influence of Teachers' Background, Professional Development and Teaching Practices on Students' Achievement in Mathematics*.

- ics in Lesotho*. Masters Dissertation, Unpublished. Pretoria: University of South Africa.
- Richardson AR 2008. *An Examination of Teacher Qualifications and Student Achievement in Mathematics*. Masters Dissertation, Unpublished. Alabama: Auburn University.
- Unanma AO, Abugu HO, Dike RC, Umeobika UC 2013. Relationship between teachers educational qualifications and student's achievement in chemistry: A case study of Owerri West LGA. *Journal of Research and Method in Education*, 1(1): 05-10.
- Van den Bergh L, Ros A 2014. Improving teacher feedback during active learning effects of a professional development program. *American Education Research Journal*, 51(4): 772-809.
- Wahling H 2014. What Are the Benefits of Teaching at a Boarding School? From <http://www.ehow.com/list_6671435_benefits-teaching-boarding-school_.html> (Retrieved on 22 March 2014).
- Wong M 2013. Teacher Qualification and Student Academic Achievement. From <<http://www.studymode.com/essays/Teacher-Qualification-And-Student-Academic-Achievement-1704810.html>> (Retrieved on 05 March 2014).