Exploring Success Rates in a Professional Development Programme for In-service Teachers

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Abstract

The purpose of this study is to explore the success rate of practising teachers in an in-service programme at the University of KwaZulu-Natal for the period 2007 to 2011. Success in this context is taken as the ability to complete the programme in the minimum time of two years. The participants were a group of mathematical literacy teachers, most of whom were over 35 years old and were enrolled in an advanced certificate in education programme funded by the KwaZulu-Natal Department of Education. Data was sourced from students' assessment records and the student management system. The factors that were identified as influencing the participants' success were gender, race, level of prior qualification and Grade 12 mathematics results. It was found that the group of students with the lowest rate of success was the female African teacher who had not studied beyond her initial three-year college diploma. The findings of study suggest that universities that offer programmes for upgrading teachers should design support systems to help the female African teacher with a three-year diploma to cope with the demands of the formal programme.

Introduction and Background

The past two decades have witnessed many interventions in South Africa in an attempt to reverse some of the damages to the teaching and learning caused by the legacy of the apartheid education system. Two of these interventions are of particular relevance to this study. First, the closing down of all colleges of education, and second, the introduction of the school subject referred to as 'mathematical literacy' (ML).

During the 1990's many colleges were shut down while some were incorporated into higher education institutions (universities) in 2001. One of the reasons was the evidence that suggested that many colleges of education were producing teachers of poor quality (Rogan 2007; NEPI 1993). The shutting down of the colleges meant that many graduates from the colleges had to pursue studies at higher education institutions (HEI's) in order to upgrade their qualifications. Teachers with only a three-year college qualification[1] are labelled under-qualified and need to study further for recognition as fully qualified.

The second intervention referred to above was the introduction of ML. The purpose of ML is not for learners to do more mathematics, but to use it in more applications that will help them make sense of the world (DoE 2007:7). The introduction of the subject ML, which in the year 2010 had 280 836 candidates enrolled for the matriculation examination (DBE 2011) meant that large numbers of teachers needed to be trained to teach the subject. Prior to its introduction, no university had any initial teacher training programme in ML, and the only teacher training opportunities were the retraining of practising teachers who were prepared to teach the new subject. One example of a retraining programme is the Advanced Certificate in Education – Mathematical Literacy (ACE ML) qualification. The University of KwaZulu-Natal (UKZN) partnered with the KwaZulu-Natal education department to offer an ACE ML programme for those teaching ML and who needed to be trained to teach the subject.

The ACE qualification has proved to be a popular upgrading opportunity to the under-qualified teachers since it allows the teachers to improve their REQV from 13 to 14 on completion of the programme. During their review of ACE programmes, the Council for Higher Education reported that in 2006 there were 69 different kinds of ACEs in the country and that over 290 specialisations were being offered, (CHE 2010). Another reason why many teachers enrolled for ACE programmes was that it provided a pathway to higher education. Teachers who had an ACE qualification, could go on to study for honours degrees (provided their performance was con-

[1] A three- year initial teacher qualification is also referred to as a relative education qualification value (REQV) of 13. Teachers with an REQV of 14 and above are classified as fully qualified.

sidered good enough), and then progress further if they desired[2].

When the ACE ML was launched, many teachers viewed this as a fully funded opportunity to retrain, upgrade or enter the higher education pathway for further formal learning. Furthermore ML is a subject which has intersections with domains of learning from other subjects such as geography, economics, accounting, mathematics. There was an assumption that any teacher could be trained to teach the subject[3]. In short, participants in this programme joined for different reasons and came from diverse backgrounds.

In attempting to explore the success of this in-service intervention, this study aims to look at one aspect of the programme, which is the success rates of the in-service teachers enrolled on this programme. The success rate of a group is defined as the percentage of the group who completed the programme within the minimum two-year period. It is clear that investigating success also involves studying non-completion and drop out.

In recent years in South Africa there has been much interest in the issue of drop-out and the completion rates of university degree programmes (Letseka 2007; Letseka & Maile 2005; Scott, Yeld & Hendry 2007; Zewotir, North & Murray 2012). However, much of this has been about the full-time undergraduate student entering university for the first time. There has been little interest in research about teachers who are enrolled in in-service programmes, although with the numerous curriculum changes, large numbers of teachers have been funded to receive retraining in new specialisations. It is therefore intended that this study will add to knowledge about the diversity of this group of in-service teachers and the variations in success rates of various subgroups. This knowledge will contribute to an understanding of the differential needs of teachers who enrol in in-service programmes, and also alert teacher educators to students that are possibly 'at-risk' of not completing the programme.

[2] Note that with the new qualification framework (DoHET 2011), teachers with an ACE need a further qualification in order to qualify for studies at honours level.

[3] However this view is not shared by the writers of the current teacher education qualification framework (MRTEQ) who have stipulated criteria for an ML teaching qualification as equivalent to that required for a Senior Phase mathematics teachers.

The Success and Drop-out Rates of Students in Higher Education

In this literature review section, I first report on studies that have been conducted on success rates of full time students in South Africa. I then highlight some pertinent issues around the changing demographics of students before focusing on the situation of mature students, who are very different from the usual undergraduate young student. Research results around gender and mathematics are then briefly covered before the final section which presents some arguments about why the needs of teachers need to be foregrounded in the design of any professional development programme

Zewotir *et al*. (2012) comment that the challenge facing HEIs is to improve success rates while maintaining the high quality of the programme. Recently there have been many studies in South Africa which have focused on success rates and drop-out rates of students in HEIs; most notably the HSRC Human Pathways study (Letseka 2007) which examined full-time student drop-out rates in seven selected HEIs. The DoE estimated that approximately 30% of students who enrolled in 2000 had dropped out in their first year of study (Letseka 2007). A further 24 000 (20%) dropped out during their second and third years. Of the remaining 60 000, 22% graduated within the specified three years' duration for a generic Bachelor's degree (Letseka & Maile 2005). Over 80% of the student drop outs cited academic failure and poor career advice as reasons for dropping out. Other reasons were lack of finance, institutional culture and personal or family issues. The DoE study of the 2000 national cohort (Scott, Yeld & Hendry 2007) showed that, after five years, only 50% of students who were first-time entrants into (contact) universities had graduated while 38% had left their orignal institutions.

In comparison to these national trends, full-time first-time students at UKZN have fared a litle better. For example, 56% of first-time students graduated after five years, as compared to the figure of 50% reported in the DoE study for full-time contact students. Also, the student attrition at 28% in UKZN, though high, is less than the DoE figures of 38%. If we restrict the results to the school of education only, the success rates are even higher. Graduation rates in the education faculty for full-time students are 63% in a minimum time of four years and 73% in five years, with an attrition rate of 16% (Dhunpath, Maphosa & Vithal 2010). This is an improvement of almost 150% when compared to the national percentage of completion within five

years. However these figures are only applicable to the full time student who is enrolling for the first time and is likely to be under 25 years. In contrast this study focusses on part-time mature adults who are full-time teachers. It will be shown that the corresponding figures for the in-service teacher in the programme under scrutiny, are much lower for completion within minimum time but after five years, the completion rates are similar.

In trying to explore student success and failure in programmes it is necessary to recognise the diversity of the student population. Fraser and Killen (2005: 26) have noted that the

> social, cultural and economic backgrounds of students now entering most South African universities give them different life experiences. When these factors are combined with a diversity of abilities, attributes and motivations, the result is that students have vastly unequal levels of readiness for studies in higher education.

Cross and Carpenter (2009:7) note similarly, that universities have increasing numbers of students from historically disadvantaged groups. The academic trajectory of students from underprivileged backgrounds is 'strongly characterized by low throughput, drop-outs and failures … [casting] doubts upon the prospects of democratization on academic success' (Cross & Carpenter 2009:7).

Fraser and Killen (2005) showed that while there were some levels of agreement between lecturers and students about factors which influence success, there was considerable diversity about factors which contributed to failure. The authors attribute the lack of common agreement about factors with the potential to lead to failure, to the 'different life experiences of the lecturers and students' (Fraser & Killen 2005: 36). Some factors seen as contributing to success were self-motivation, consistent effort as well as a willingness to accept a challenge. The authors argue that students who have a strong personal connection with the institutional culture are more likely to be motivated and to study more effectively. They comment that such personal connections may be difficult to establish unless both students and lecturers have a shared understanding of what might support the students' learning efforts.

Gender differences amongst students is one area that has received attention in research Zewotir *et al*. 2012; Saito 2010; Howie 2005; Reddy

2006; Kalideen 2004; DBE 2011). In evaluating student success in terms of gender, Zewotir *et al*., (2012) found that across most faculties in UKZN, there was no significant difference between first-year males and females with respect to their failure rates. However female undergraduate students enjoy greater success than their male counterparts in the school of education. Their study (Zewotir *et al.* 2012) also found no significant disadvantage associated with females when compared to their male counterparts across the other faculties at UKZN. This result is consistent with results from some other recent studies showing that the gender gap in mathematics has decreased and in some cases has been reversed for the current school pupils. Results from the Southern and Eastern Africa Consortium for Monitoring Educational Quality tests, SACMEQ II and SACMEQ (III) reveal that girls outperformed boys in mathematics (Saito 2010). In terms of the reports for the Third International Mathematics and Science Study (TIMSS) conducted in 1999, there was no difference in the scores of the boys and girls (Howie 2005). However, TIMSS 99 scores revealed that whereas there was no gender difference in national performance there was a difference in performance by girls and boys in African schools. In TIMSS 2003 there was no gender difference in any of the groups (Reddy 2006). Likewise, at Grade 12 level there is little difference between the performance of girls and boys in mathematics. In the 2010 Grade 12 examinations, 52% of boys passed mathematics while 44% of girls passed (DBE 2011). In certain cases girls have been seen to be outperforming boys at mathematics in Grade 12, as in the case in Gauteng in 2003, where it was reported that female candidates had obtained more distinctions than boys. In townships, an interesting trend was that more girls than boys took mathematics and science on the higher grade and passed (Kalideen 2004). Therefore, gender disparities favouring male students seem to have been minimised in the current 'born free'[4] generation of students in South Africa. However, for this group of mature inservice-teachers it will be shown that male participants had a significantly greater chance of success than their female counterparts.

In this study the students are in-service teachers who have to manage their learning while juggling their domestic and work related responsibilities.

[4] The term 'born free' is used to describe the generation born after the demise of apartheid in 1994, who have therefore not been subjected to political and systematic forms of race-based discrimination.

Pokorny and Pokorny (2006) remark that generally there is agreement that mature students adopt a deeper learning approach than do younger students. However they comment that the relationship between age and academic performance is complex, with many studies are inconclusive about this relationship. Perhaps the inconclusiveness may be due to the diverse reasons why mature students take up studying later in their lives as well as the diverse study fields they embrace. This study is focused on a particular group of mature teachers who had enrolled to improve their understanding of the subject and/or to upgrade their qualification level. Pokorny and Pokorny also report that there is evidence that mature students aged between 26 and 30 outperformed students younger than 21 but that performance after age 30 declined progressively with age. Eighty per cent of the teachers in this study were over 35 years old. However this study has not been able to establish any related association, between increasing age and propensity for success or failure in university studies. It is clear that research around the type of support needed by the mature student is urgent, however it is important that such research is relevant to the context of the student.

Johnson, Hodges and Monk (2000) argue that most research on teachers' professional development centres around the dominant concerns of northern/western researchers working in developed countries. They suggest that teacher trainers expend much of their effort in trying to change teachers by asking 'How can I make them behave otherwise?' Instead a shift in focus is advised where teacher trainers should rather try to find out more about the contexts and reasoning behind the practices of teachers. These authors are adamant that teachers who come from the economically developing countries are 'constrained by a somewhat different set of circumstances, have different perspectives on the work they do, and need different in-service provision to those in developed countries' (180). It therefore does not make sense that interventions for teachers who have had poor preparation in teacher training should be designed around the needs of teachers who come from well supported and functioning systems. Sztajn (2008) reminds mathematics teacher educators who work with practising teachers of their need to be 'both responsible and responsive to teachers, attending to both teachers' knowledge and to teachers' needs' by acknowledging that the practising mathematics teachers we work with are adults who come to a learning situation with their own sets of goals (300).

An additional challenge faced by students is their affiliation with the institutional culture which may be at odds with their own life experiences. Cross and Carpenter (2009) draw on Bernstein's work to argue that the university system is governed by two different logics which may not be reconcilable: the logic of performance and the logic of competence. The main characteristic of the model of performance consists of strict distribution of roles. Students are required to raise 'themselves to a high level of performance, by skilfully mastering the rules and procedures of the process of knowledge acquisition'(Cross & Carpenter: 2009:12). The power to determine the contents of academic knowledge resides with the lecturer. In contrast the model of competence emphasises the overall development of students, and not just their capacities of knowledge acquisition. In this second model, the relationships between students and lecturers are 'governed by a conception of social justice, incorporation and participation' (Cross & Carpenter 2009:12). In trying to cater for these different logics, there will inevitably be contradictions. Cross and Carpenter (2009:7) comment that universities are forced into a paradox of trying 'to accelerate and reinforce social inequalities, whilst pretending to neutralize and fight them'. These arguments by Cross and Carpenter are relevant to this study based on the success rates of in-service teachers in a professional development programme because it raises questions about the type of logic emphasised by the HEI concerned.

Methodology

In this section, before discussing the research design I will first provide a description of the participants in the study, as well as the actual programme under scrutiny. I then discuss the research design, which covers the type of study, the data sources as well as the quantitative procedures that were used to analyse the data.

Participants

The participants in this study were a group of 691 in-service teachers who were enrolled on an ACE ML programme at UKZN. The teachers came from all 13 of the education districts in KZN, with 78% of the group being over 35 years old. There were 168 males and 523 female teachers. Although it was a

condition that each participant was teaching a class of ML learners, the student records revealed that at least 189 teachers were not teaching ML, but managed to get onto the programme. The teachers who joined the programme were initially selected by the DoE based on the criteria that they were teaching ML, had a minimum teaching qualification at M+3[5] level and had studied mathematics up to Grade 12 level. The application had to be endorsed by the principal of the teacher's school. Thereafter the applications were screened at UKZN to ensure compliance with the institution's internal selection criteria.

Details of the Programme

The ACE programme under discussion in this article is made up of eight modules. These are made up of four modules devoted to the development of content knowledge skills in ML, two modules focus on the development of pedagogic content knowledge skills in ML and two are generic education modules. This mixed mode programme was run over two years with classes held in block sessions during the school holidays and on Saturdays.

Research Design

This study used a quantitative research approach. Neumann (2011) comments that one of difference between quantitative and qualitative research come from the nature of the data. '*Soft data*, in the form of impressions, words, sentences, photos, symbols and so forth' require different techniques than that of '*hard data*, in the form of numbers' (Neumann 2011: 151). Furthermore the analysis in this study in line with a quantitative approach, utilised a 'language of variables and hypotheses' (Neumann 2011: 151). Neumann also states that the quantitative research process can be characterised by the re-organisation, and coding of data by using explicit rules, formal procedures and techniques. In this study I have drawn upon logistic regression and the

[5] 'M+3' refers to a three-year post-matric qualification such as a teaching diploma obtained from a former college of education and is classified as REQV 13 in the new dispensation where any lower qualification renders the teacher as 'underqualified'.

chi-square test for independence as the formal procedures. 'Success' in this study is defined as completing the programme within the minimum time of two years.

Data Sources

The data was collected from student records, comprising details of completion dates, age, gender, race, previous qualification, institution where the qualification was obtained, matriculation points and mathematics symbol acquired in the matric examination. In capturing the quantitative data, records for 691 students were accessed from the student management system and archival records from their files. Each entry contained a record for gender, race, actual mathematics symbols, matric points, prior qualifications, performance in each of the eight modules and the time taken to complete.

Data Analysis

The technique that was used for the investigation was regression analysis, which is used to 'assess the relationship between one dependant and several independent variables' (Gaur & Gaur 2006). The dependent variable that was investigated was completion within minimum time and was named 'complete 2'. This categorical variable took on the value '0' if the student did not complete within two years and '1' if the student completed within two years. The dependant variable was categorical and not a continuous variable, so the type of regression that was used was logistic regression. The chi-square test for independence was also used to confirm that the categorical dependent variable and the categorical independent variables were independent of each other in each case. The level of statistical significance that was considered was $p = 0.05$. This level (usually taken as 0.05 or 0.01) 'is a way of talking about the likelihood that results are due to chance factors' (Neumann 2011:371). When a researcher says results are significant at the 0.05 level, it means that such results 'are due to chance factors only 5 in 100 times' (Neumann 2011:371).

The four independent variables that were investigated were 'gender', 'race', 'actual matric mathematics points' and 'level of prior qualification'. The 'race' variable was coded to form a dichotomous variable consisting of

the two categories, African and non-African. 'Actual matric mathematics points' were coded as A=8, B=7, etc. for symbols on the higher grade, with the standard grade being rescaled two points downwards (unlike Zewotir *et al*. 2012 who scaled them down by 1 point). The variable 'level of prior qualification' was categorised into two levels: M+3 qualification, above an M+3 qualification. There were 122 teachers for whom data such as teaching experience, matric results and qualification levels were not available.

Results

In this section, I will first present the completion rate of the entire group as assessed five years after commencement of the programme, before going on to the results of the regression analysis. This is followed by a detailed breakdown of the success rates in terms of gender, race and level of prior qualification. Finally I consider the success rates of groups disaggregated by a combination of three of the independent variables.

Overall Completion Rates

The rates of completion of the programme are presented in Table 1. The table shows that 55% of students completed the programme within the minimum time (2 years), with an overall 75% completion rate by the end of five years. The drop-out rate was 25% while those who did not complete and were still in the system after five years comprised a figure of 5%.

Table 1: Completion rates as assessed at five years after commencement

	Frequency	**Per cent**
Completed in 2 years	377	54.6
Completed in 3 years	105	15.2
More than 3 years to complete	36	5.2
Still in system	33	4.8
Drop-out	140	20.3
Total	691	100.0

I now present the results of the logistic regression that investigated the effects of four factors on the dependent variable 'complete 2'.

Regression Analysis

The results of the logistic regression are detailed in Table 2 below.

Table 2: Results of logistic regression with 'complete 2' as response variable

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Race(1)	1.763	.453	15.112	1	.000	5.828	2.396	14.174
Gender (1)	-.722	.225	10.298	1	.001	.486	.312	.755
Actual maths points	.192	.054	12.568	1	.000	1.212	1.090	1.348
Level of qualification			49.407	2	.000			
Level of qualification (1)	-2.368	.777	9.281	1	.002	.094	.020	.430
Constant	2.158	.798	7.307	1	.007	8.650		

The full model containing the four predictors was statistically significant χ^2 (7, N=583) = 133.8, p=0.000, indicating that the model was able to distinguish between respondents who completed and did not complete within minimum time. As is evident from Table 2, all four of the variables made a unique statistically significant contribution on completion of the course within two years. These factors all have significance levels $p< 0.01$. The details of the differences in the rates of completion within two years, for each of these four variables, are explored further below by considering each variable in turn.

Gender

In terms of the gender effect, the percentage of male teachers that completed the course within two years was 68% as compared to the 50% of female students who completed in that time. A chi square test is significant in this case (chi square= 14.56, p=0.000), confirming that the difference in completion within two years was statistically significant.

Enrolment Purpose

In this particular cohort of this programme, it became necessary to distinguish between those teachers who used the funded opportunity to upgrade their status to fully qualified, from being under-qualified, and those who did not require the upgrading but enrolled for the purpose of being retrained to teach the new subject ML. In order to distinguish between those teachers who enrolled for upgrading purposes and those who did for retraining purposes, the prior qualifications were scrutinised where available (there were 112 teachers whose records were not available). I categorised those teachers who had only an REQV 13 or M+3 qualification as enrolling for the upgrading, purpose while those teachers who had an REQV 14 or higher (greater than M+3) were categorised as enrolling for retraining purposes. The logistic regression identified that enrolment purpose (level of prior qualification) was a significant explanatory variable. Furthermore a chi square test is significant with chi square= 84.9 with a *p*-value of 0.000. It was found that 74% of the retraining teachers (above M+3) completed the course within two years, which is significantly higher than the upgrading group (M+3) at 44%.

Matric Mathematics Symbol

The logistic regression results of Table 2 show that 'actual matric mathematics points', which represents the matric mathematics symbol, is a significant explanatory variable. Table 3 below presents the details of the differences between the matric mathematics points of those who completed in minimum time as compared to those who did not.

Table 3: 'Complete 2' versus 'actual maths points'

	Completion status	**N**	**Mean**	**Std. deviation**	**Std. error mean**
Actual maths points	Did not complete in 2 years	230	1.54	1.777	.117
	Completed in 2 years	353	2.52	1.961	.104

When performing a test for difference between means for the 'completed in 2 years' and for the 'did not complete within 2 years' groups, the first group had a significantly higher mean (t=-6.102 with a p-value of 0.000). Table 3 shows that the mean of the group who completed within two years is 2.52 (between a D and E standard grade) while those who did not complete within two years had on average a matric mathematics point of 1.54 (between an E and F standard grade). It is important to note that the variable 'matric points', which is the total number of points obtained by the students in all the subjects they studied in matric, is closely related to the actual mathematics point variable. If the former variable is used in the regression (instead of actual maths points), it is also reported as a significant factor, as is the case for 'actual maths points' (Table 2).

Race

The logistic regression results showed that 'race' is a significant explanatory variable, and is in fact the strongest predictor of whether or not a student would complete in two years. When comparing the percentage of African to non-African respondents who completed within minimum time, it was found that 48% of African respondents completed the programme in minimum time. The corresponding percentage for non-African respondents was 91%. A test for differences showed that these differences were significant (chi square = 63.0 with a p-value of 0.000).

Considering a Disaggregation of Three Factors

When the whole group is broken down into groups according to the variable categories, significant differences are evident in the rates of completion within two years. However, the question arises: What happens to the probabilities of completing within minimum time when a group is affected by two or more variables in combination? In order to understand the overall effect of these factors on the success rates for this group of students, it is instructive to consider groups made up by a combination of the three variables of race, gender and prior qualifications. Breaking down the groups further according to matric mathematics symbols will not be practical because then the groups would be too small for any meaningful comparisons to be made. Table 10 shows a disaggregation of the data into eight groups,

each reflecting different completion within minimum time rates. The missing values refer to the 122 students whose records concerning their prior qualification were not in the database.

Table 4: Combined effect of race, gender and qualification level

			Not completed in 2 years	**Completed in 2 years**
Missing values			77	35
M+3	Male	African	33	42
		Non-African	1	6
	Female	African	128	68
		Non-African	1	10
Above M+3	Male	African	13	36
		Non-African	0	17
	Female	African	56	112
		Non-African	5	51

Table 4 shows the stark difference between the group of male, non-African, above M+3 respondents and that of the female, African, M+3 respondent. The rate of completion within minimum time for the former group is 100% while for the latter group it is 35% (excluding the missing records). Of interest also is that the success rate for an African male M+3 respondent is 56% as compared to the 35 % of the female counterparts. This difference is also evident with the above M+3 African grouping where the success rates of the male is 73% while that of the female group is 67%.

Discussion

In this article I examined the effect of four dependant variables of race, gender, matric mathematics symbol, and prior qualification on the success

rate (taken as the rate of completion within minimum time). The programme under consideration is the ACE ML which is a professional development programme for teachers. A logistic regression revealed that all four factors made a statistically significant contribution towards the success rate. It was also shown that the group that is most marginalised is the African female teacher who had enrolled for upgrading purposes, and whose success rate in the programme was only 35%.

In this scenario of upgrading and retraining teachers to teach ML, what would be considered as acceptable levels of throughput? The success rate of 50% of the entire group of teachers is higher than that of the fulltime undergraduate South African student although it is lower than the 63% success rate achieved by full-time students in the school of education. Unlike the case of undergraduate students, the students in this group are not first time students. They have already been successful at an initial qualification in education, and the ACE may constitute a second or even third qualification. Furthermore, this qualification is a professional one which will upgrade the under-qualified teacher who is supposed to be teaching the subject at school. Therefore, a pass rate of 50% within minimum time is very low. On the other hand, the fact that mathematics competence levels in the country is very low both among teachers and learners, means that a 50% success rate may be commendable, in view of the severe disadvantages that many of these teachers incurred from their apartheid education at schools and at colleges of education. Perhaps this level of success can serve as a starting point for teacher educators to develop more successful programmes that are tailored around the teachers' needs. If teachers find the programme relevant and responsive to their real needs, they will be more motivated which research suggests (Fraser & Killen 2005) will lead to greater success rates.

A significant factor that emerged was the purpose behind students' enrolment. I put forward two possible reasons for enrolment purpose emerging as a significant factor influencing students' success. Firstly, the teachers who had higher qualifications than M+3 would have had more experience of studying than the upgrading group, because of their higher level qualification. Thus it is to be expected that students with more experience of studying would be more likely to be successful in an academic programme than those with less experience, especially if appropriate scaffolding is not in place. I proffer a second reason for this disjuncture in the success rates of the two groups. Many who had higher qualifications would have studied at universi-

ties or colleges which were accredited to offer M+4 qualifications. They may thus have been more adequately prepared for the challenges of studying in a university environment. The teachers with an M+3 qualification had only studied at teachers' training colleges which was often more reflective of a school environment than an institution of higher education. Many colleges offered a limited curriculum with an emphasis on mastering high school content and classroom management skills (NEPI 1993; Adler 1997). This study shows that teachers who have no qualification beyond that obtained at a teacher training colleges are not sufficiently prepared for further study, based on the evidence that their success rate was only 44% as compared to the 73% of the retraining group. Thus it seems that the under-qualified teacher would benefit from additional academic support in the programme.

Race emerged as a significant factor as well, which is not unexpected. The teachers in this programme attended schools as well as colleges during the apartheid era. Although the apartheid laws have long been removed, its devastating after effects continue. Enslin (2003:76) argues that apartheid provided 'restricted, ethnically ascribed, second class citizenship for blacks'. This study shows that it is very hard to compensate for deficiencies experienced for twenty years in schooling and in teacher training. If higher education institutions are serious about improving the quality of education, a starting point has to be recognition that black teachers have been unfairly disadvantaged by apartheid schooling. Professional development programmes which ignore the dimension of poor schooling experiences are disregarding the needs of the people they are supposed to be helping. Sztajn's (2008: 300) reminds us that teacher educators need to be 'both responsible and responsive to teachers, attending to both teachers' knowledge and to teachers' needs'.

Concluding Remarks

What lessons does this study offer about the in-service training for retraining versus in-service training for upgrading purposes? The new Teacher Education Qualification framework (DoHET 2011) is adamant that the two purposes must be separated and addressed in different programmes. Teachers with an M+3 qualification only will have to complete an Advanced Certificate in Education (ACT) before being allowed to move on to an

Advanced Diploma in Education (ADE) which will open up pathways through postgraduate study. In the current situation a person with an ACE qualification is able to progress to studying towards an honours degree. The results from this study support the call that some teachers with an M+3 qualification from the previous colleges of education may benefit with more time allocated to a programme designed for upgrading their qualifications. More than 50% of the upgrading group could not complete the qualification in the two-year period, but this number increased to 63% within a five year period, showing that their perseverance paid off.

The results of the study also have implications for the implementation of future professional development programmes such as the ACE ML. It has been shown that there are wide disparities in success rates between male and female, African and non-African as well as those with different levels of prior qualification. If this diversity in achievement is ignored when designing future programmes, the programme designers will be guilty of promoting unequal access to further formal learning opportunities. How could future offerings of this programme ensure that the marginalised groups are supported to improve their chances of completing the programme? Firstly it is important to note that 75% of the group was able to complete the programme in five years. This suggests that some people may benefit with increased contact time and an opportunity to complete the programme over a longer period. These in-service teachers have teaching duties and family commitments, which programme designers need to take into consideration.

The commitment of programme designers to successful outcomes ultimately depends on whether they follow a logic of performance or the logic of competence (Cross & Carpenter 2009). With the former, it is the students' responsibility to raise 'themselves to a high level of performance (Cross & Carpenter 2009:12). However if the programme designers are driven by a model of competence, they will seek to be responsive to their needs of their students and actively promote their 'conception of social justice, incorporation and participation' (Cross & Carpenter 2009:12). It is vital that higher education institutions do not inadvertently 'accelerate and reinforce social inequalities, whilst pretending to neutralize and fight them' (Cross & Carpenter 2009:7)

This was an exploratory quantitative study which has raised many issues that could be further explored by using more nuanced qualitative research methods. Together, such studies can provide a deeper understanding

of the contextual complexities of in-service provision within the South African context. In particular it is hoped that this study will encourage others to explore why African women teachers with only a college diploma, fared so badly in this programme. Could their struggles be related to vastly unequal levels of readiness for studies in higher education? Or does it reflect a lack of a strong personal connection with the institutional culture, which are reasons put forward by Fraser and Killen (2005) for students' failure at university studies? Or are their other deeper reasons that could account for these low rates of success?

In conclusion, this study only focused on teachers' success in completing the programme within minimum time. A broad notion of success of the programme ultimately depends on the extent to which the programme led to improvements in teachers' practice in the classroom. This aspect demands a large-scale study and should form the focus of further research.

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