

Wastage Rate Of Education Graduates From University Of Malawi, Chancellor College From 2005 To 2009

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ABSTRACT

Reports have shown that many students that graduate as secondary teachers from the University of Malawi do not enter the teaching profession. The purpose of this study was to investigate the wastage rate of education graduates from University of Malawi, Chancellor College from 2005 to 2009. Cross-sectional data were collected from the total population of education graduates from 2005 to 2009 (n=760) through document analysis, structured interviews, and telephone-administered and self-administered structured questionnaires. The study revealed a wastage rate as high as 12.0%. Using the χ^2 test of homogeneity, the calculated χ^2 (1df) = 4.992, $p = 0.03$, exceeded the critical value of $\chi^2_{0.05}$ (1df) = 3.84 denoting that there was a difference in wastage rate in terms of gender and that more female ($R = 1.842$) than male ($R = -1.00$) graduates were likely to decline to enter the teaching profession. The study established that the most important factors influencing teacher wastage were lack of opportunities for professional development, inadequate teacher salary and availability of alternative employment. The implication of these findings entails: projections of teacher supply that do not take into account the wastage rate are bound to be inevitably inaccurate and fundamentals that attract people to an occupation should be addressed in the teaching profession without which teacher wastage would remain a major challenge.

INTRODUCTION

The success of expanded access to primary education in many countries in Sub-Saharan Africa including Malawi, has pushed both governments and donors to turn their attention toward establishing a more widely accessible, more relevant and high quality secondary education (Mulkeen, Chapman, DeJaeghere & Leu, 2007). As such, teacher policy and planning becomes very central to the challenges of both expansion and quality of education at all levels. This is because qualified teachers are indispensable; they form the firm edifice of educational development and play a fundamental role in determining quality, effectiveness and relevance of education which is recognized as a precondition to achieving poverty eradication, sustainable human development and equity. Increased effort has to be put to expand secondary education in response to the need for qualified secondary school teachers. Paradoxically, the supply of qualified secondary teachers has not increased rapidly enough to match with the demand (Ministry of Education, 2007). The perennial shortfall in teacher supply seems not only to be confined to the concern for numbers but quality as well. It has been ubiquitously observed that teacher training institutions in Malawi are characterized by very low institutional output of teachers. The total institutional output from all institutions has probably stalled at 450 teachers per year (Ministry of Education, 2007) while 2000 new secondary teacher are needed to meet the

demand every year. As a result, the shortage of qualified secondary teachers in general and in certain subjects and geographical areas in particular has continued to be a matter of serious concern for policy makers, education planners and schools in Malawi (Centre for Education Research and Training [CERT], 2005). The gravity of teacher shortages has been well manifested by three potential measures “vacancy rates”, “out-of-field teaching” and “hidden shortages” (Santiago, 2002, p.22). Vacancy rate refers to the number of unfilled vacancies for teachers while hidden shortage or out-of-field teaching is a scenario where teaching is carried out by someone not qualified to teach the subject (Wilson & Pearson, 1993). Studies in Malawi confirm that the exorbitant number of teachers in the secondary education system are either unqualified or under qualified (Kayuni & Tambulasi, 2007; Mtika & Gates, 2010). For instance Mulkeen (2010) found that 61.5 percent of secondary teachers are qualified as primary school teachers and could be teaching at primary schools. Unfortunately, most of these qualified primary school teachers are in CDSSs yet these are the secondary schools that enroll 70 percent of the secondary school population in Malawi (Ministry of Education Statistics 2007). It can therefore be concluded that the largest population of students in secondary schools in Malawi is taught by unqualified teachers.

THE CONTEXT OF THE PROBLEM

Over several decades the shortage of qualified secondary school teachers has been attributed to two main factors: very low institutional output of trained teachers (recruitment problem) and too many qualified teachers leaving the teaching profession after a short period of time (attrition problem) (CERT, 2005; Kadzamira, 2005; Mtika, 2008). There is limited recognition that students that graduate as teachers may think about the option of becoming a teacher differently when alternative graduate opportunities are plentiful (Chung, Dolton & Tremayne, 2004). Unfortunately, research evidence has shown that the completion of a teaching course is not always a positive predictor for entrance into teaching (Rots, Aelterman, Vlerick & Vermeulen, 2008). It is further echoed that the challenge of persuading substantial number of young education graduates to enter the teaching profession is currently proving difficult (Cockburn & Haydn, 2004). Smithers and Robinson (2000) concluded that “there appears to be less research on the decision to either enter the profession or not once training has been completed, yet this appears to be a key area of ‘wastage’ in the profession; those qualified to teach did not do so” (p.17). Purcell, Wilton, Davies and Elias (2005) also contend that “there has been little investigation of the critical point between the completion of teacher training and the entry to the profession proper where a significant proportion of potential teachers are lost” (p.31). These authors strongly wondered why individuals who completed either postgraduate or undergraduate education training programs in the United Kingdom never entered the profession for which they are qualified (Purcell, Wilton, Davies & Elias, 2005). Kadzamira (2006) and Ministry of Education (2007) acknowledge that few people trained as secondary teachers from the university actually take up teaching posts in Malawi. Mulkeen’s study (2010) on teachers in six Anglophone Africa countries including Malawi found that the entry to teacher training does not necessarily reflect either perceived availability of teacher jobs or the desire to work as teachers. As a result many of these teachers are trained but never enter the teaching profession a phenomenon often known as “wastage”. However, Mulkeen (2010) also indicates that accurate information on wastage is rarely available in all the Anglophone African countries under study, despite indications that it is a significant problem in some cases. This

provided a legitimate impetus for policy makers, education planners and teacher educators to get to know the magnitude of the wastage rate. It is surprising that despite the great expense in teacher training, Malawi and many other sub-Saharan Africa countries still invest extensively in teacher education expecting graduate teachers to enter the teaching profession after they complete the program. Unless efforts are made to investigate the magnitude of graduate teachers that never enter the teaching profession and their reasons for doing so and necessary steps are taken to rectify the problem, the education programmes will continue to be filled by people who do not become teachers. This study therefore endeavored to measure the magnitude of the wastage rate and to uncover the reasons why education graduates decline to enter the teaching profession.

PURPOSE OF THE STUDY

The purpose of this study was to investigate the wastage rate of education graduates from the University of Malawi, Chancellor College from 2005 to 2009. The study focused only on education graduates from Chancellor College because the University of Malawi is the oldest and main university of the country and Chancellor College is one of its constituent colleges housing the oldest and main faculty of education which is responsible for training the majority of graduate secondary teachers in Malawi. Therefore, in order to achieve the purpose, the study is designed to answer the following research questions:

1. How many education graduates from Chancellor College declined to posting?
2. Is there a difference in the wastage rate by gender?
3. What are the most cited reasons why graduate teachers from Chancellor College decided not to enter teaching after graduating as teachers?
4. How important were the cited factors to the decision of education graduates to decline to enter the teaching profession?

SIGNIFICANCE OF THE STUDY

This study will contribute to the knowledge of teacher education graduates' choice of not entering the teaching profession. Most importantly, the study attempts to close the critical gap in literature on planning for teacher supply. According to Mulkeen (2010) planning teacher supply requires information on "the projected student enrolment, the policy on pupil-teacher ratio, the existing number of teachers broken into their subject specialties where applicable, the annual teacher attrition rate, the annual output of newly trained teachers and the wastage rate" (p.55). Unfortunately, the wastage rate of graduate secondary school teachers in Malawi and other sub-Saharan Africa Countries is not known. This suggests that there is a high likelihood that the wastage rate is omitted when planning for teacher supply. Thus, all teacher planning models are likely to underestimate the national teacher requirements. The findings of this study will broaden stakeholders' understanding of the underlying reasons why some students never enter the teaching profession after graduating from the university as secondary teachers.

THE CONCEPT OF "TEACHER WASTAGE"

A thorough examination of literature shows that the concept of teacher wastage is an elusive term which means different things to different researchers. Smithers and Robinson (2000) define teacher wastage as "the combination of trainees not completing

their courses, not choosing to go into the profession at the end of the course or leaving the profession within few years of service” (p.17). Macdonald (1999) considers teacher wastage as “the number of teachers who leave full time teaching in the pre-school, primary and secondary sector of education through causes such as death, retirement, resignation, dismissal, temporary withdrawal and resignation within education” (p.836). There are two major problems inherent in these definitions. First, students that dropout of the teacher education who have not yet qualified to be teachers are incorporated in the first definition. Second, both definitions equate ‘teacher wastage’ with ‘teacher attrition’ despite the two concepts being different although they address a similar problem. Mulkeen (2010) distinguishes the two concepts in that “the annual number of teachers leaving the teaching job through causes such as death, retirement, resignation, dismissal, temporary withdrawals and movement to non-teaching post is ‘*teacher attrition*’ whereas ‘*teacher wastage*’ is a phenomenon where teachers who are trained never actually enter the teaching profession” (p.34). Mulkeen further defines *teacher wastage rate* as “the percentage of newly qualified teachers who do not take a teaching job” (p.34). This study adopted Mulkeen’s definition of ‘teacher wastage’ to investigate education graduates who decline to enter the teaching profession after graduating as secondary teachers.

THEORETICAL PERSPECTIVE

A perspective on the decision never to enter the teaching profession is most appropriately grounded in the occupational choice theories. Therefore in terms of the theoretical standpoint this study was guided by Zabalza’s (1979) theory of occupational choice and Grissmer and Kirby’s (1993) human capital theory of occupational choice. Zabalza’s theory analyzes occupational decision by means of comparing pecuniary returns that might be anticipated from different courses of actions. The theory argues that the expected utility of career alternatives are evaluated before a job choice is made. According to Zabalza, the relative earnings in the teaching profession compared to the non-teaching alternative have a marked effect on graduates’ choice of an occupation to the extent that individuals will choose to enter the teaching profession or the other alternative, depending on which of them offers the higher discounted expected returns. The theory also recognizes that the job market may pose difficulties in obtaining a job, such that the subjective probability per period of finding a job in each occupation may contribute to the career decision. This implies that if graduate teachers fail to find alternative employment opportunities, they are compelled to join the teaching profession. Zabalza’s theory therefore provides a vital perspective to account for teacher wastage although it does not explain the impact of non-pecuniary factors on career decisions. The human capital theory of occupational choice (Grissmer & Kirby, 1987, 1993) was further adopted by the study as it gives an account of non-pecuniary factors. While the theory has been extensively used to interpret the phenomenon of teacher attrition, Al Kaabi (2005) observed that it does also illuminate antecedents of the graduate teacher’s decisions not to enter the teaching profession. The theory states that individuals make systematic assessment of the benefits and costs of entering and staying in a profession.

The fundamental tenet of the human capital theory of occupational choice is that individuals or households make systematic assessment of the net monetary and non-monetary benefits from different occupations and make systematic decisions throughout their career to enter, stay or leave an occupation (Grissmer & Kirby, 1987, p. 34).

The monetary benefits comprise the stream of likely income, promotion opportunities and value benefits such as health and life insurance and retirement benefits in a particular occupation while *non-monetary benefits* encompass working conditions, support of workers, compatibility of hours and schedule with family, leisure needs and availability of adequate materials and equipment (Grissmer & Kirby, 1993). The theories of Zabalza and Grissmer and Kirby provided a catalogue of relevant dispositions couched in the teacher education graduates choice of a career that were used by the study as key parameters to investigate the phenomenon of teacher wastage.

REVIEW OF RELATED LITERATURE

Teacher Wastage as a Global Phenomenon

Cockburn and Haydn (2004) argue that despite teaching being established as a graduate career for many generations in most developed countries, the number of graduates entering the teaching profession has declined in recent years raising a big concern about wastage from the profession. A study of students recruited to initiate teacher education courses in United Kingdom (Thornton, Bricheno & Reid, 2002) shows that students held deep concerns about their subsequent pay, workload, media image, status, paper work and stress. Mtika and Gates (2010) derived low pay with no incentives, and low status profession and lack of trust among male teachers as some of the images held by Malawian secondary teacher trainees. Thus, vision of low status, demotivation and deteriorating retention of serving teachers are likely to present a gloomy image to those considering entering the teaching profession. A research report, "Enhancing the teaching profession" in the United States of America reveals that the growing number of students indicate their interest and enter teacher preparation programmes in various universities and colleges. However, upon graduation many of these students especially those in high demand fields decide not to apply for teaching jobs or do not accept positions when they are offered (Hirsch, Rodriquez, Curran & Laine, 2001). Findings from this study agree with other studies which suggest that graduates' subject specialization is an essential predictor of who will enter the profession or not (Guarino, Santibanez & Daley, 2006; Murnane & Steele, 2007). Purcell, et al. (2005), using data from two national surveys of United Kingdom graduates of 1995 and 1999 at 38 UK higher education institutions, found that on average 20 percent of BEd/BA/BSc (QTS) graduates and 39 percent of PGCE holders never entered the profession after completion of teacher education. The study also revealed that a higher proportion of males did not subsequently go into teaching once qualified. In Sub-Saharan Africa, Mulkeen's (2010) synthesis of research data from case studies on teachers in eight Anglophone Africa countries (Malawi, Uganda, Zambia, Gambia, Lesotho, Liberia, Zanzibar and Eritrea) shows that in some countries many of the teachers who are trained never actually enter the teaching profession. A case study in Liberia indicates that the University of Liberia graduated 13 teachers with degrees in primary education and 23 with degrees in secondary education in 2007. It is reported that most of these were existing teachers who had undergone the degree course on study leave from the post. However, despite a system of bonding where students were required to sign a bond committing them to work in schools, after completing the training, very few returned to teaching once training was completed. Evidence from these studies shows that the problem of teacher wastage is not confined to any particular country or region. It is a worldwide but

emerging problem. However, few empirical studies have been conducted internationally to investigate the problem.

Predictors Of The Phenomenon Of Teacher Wastage

Commitment to the Teaching Career

Coladarci (1992) defines commitment to teaching as the “teachers’ psychological attachment to the teaching profession” (p.362). Studies in Taiwan, Hong Kong and United States of America have shown that there is a relationship between the motivation for choosing teaching and the degree of commitment to the career (Chan, 2006; Wang & Fwu, 2001). These studies found that teacher trainees who are more committed to teaching regard the teaching career as a calling, display more enthusiasm and place less emphasis on extrinsic motives such as salary and working conditions. In addition, the studies predicted that where teachers are not committed to the teaching profession, most of these teachers would likely decline to enter or remain in the teaching profession (Allison, 1982; Chan, 2006; Coladarci, 1992).

Teacher Labour Supply and the Labour Market

The labour supply behavior of teachers involves a series of decisions which are moderated by the labour market. Santiago (2004) states that the decision whether or not to provide services to the teaching profession depends on the relative wages or salaries of teachers, expected wage growth (future earnings), working conditions and alternative career opportunities. Studies from United Kingdom, United States of America, Indonesia and South Africa offer a more detailed analysis of how relative wages/salaries of teachers affect teacher labour supply (Armstrong, 2009; Chen, 2009; Dolton, 1990; Stinebrickner, 2009). These studies show that relative earnings in teaching and non-teaching occupations and the corresponding growth in earnings in the two choices have a marked effect on graduate choice. Specifically, the lower are relative wages or wage growth in teaching, the less likely is a university graduate to enter the teaching profession. However, researchers further show that the power of relative wages/salaries to affect teacher labour supply depends upon the market situation at the time (Chevalier & Dolton, 2004; Chung, et. al. 2004). Particularly, if teaching is one of the few occupations available to individuals with high level of education, no effective market alternatives exist to the extent that even low levels of compensation attract qualified applicants.

Edet (2008) examined the influence of non-monetary compensation on teachers’ attitude to work in Cross River State Secondary Schools in Nigeria. The study used questionnaires to collect data from teachers (sample N=500) and students (sample N=2000) selected using stratified random sampling from thirty (30) secondary schools in the three (3) educational zones of Cross River State. The major findings of the study revealed that non-monetary compensation particularly staff development and training, esteem, recognition and instructional materials related significantly with teachers attitude to work in Cross River State. Murnane and Steele (2007) found that working conditions such as class size, contract hours, quality and adequacy of facilities, parent support, school leadership quality, collegiality within the schools and curricula autonomy influence graduates’ decision whether or not to enter the teaching profession or teach in a particular school district in United States of America. The study indicates that graduates in USA are less likely to accept job offers in school districts with poor working conditions even in the event where

compensating wage differentials are offered. Kadzamira (2006) shows that the working conditions of teachers in Malawi are daunting and deplorable especially in rural areas and CDSSs. Majority of schools lack teacher houses, have dilapidated school structures, lack facilities such as staffrooms, science laboratories, classrooms and have insufficient teaching and learning materials.

When working conditions are dreadful for teachers, it is likely that the teaching profession would suffer a dwindling status in the society. A study that investigated the status of teachers and the teaching profession in England found that the rating of status held by graduate secondary teachers placed them in the lower ranking of the list but only above nurses, primary teachers, social workers and librarians (Hargreaves, et al. 2006). Overall, the study shows teachers felt greater voids existed between the teaching profession and high status profession with teachers being the poorer recipients in terms of being respected and valued authorities. Similarly, studies in Malawi, Nigeria, Ghana, Lesotho and Tanzania divulge an incident where the teaching profession no longer commands the high status it used to enjoy during the colonial and early post-independence era and that teachers are generally underrated by society (Adelabu, 2005; Bennell & Mukyanuzi, 2005; Hedges, 2002; Kadzamira, 2005; Urwick, et al. 2005). The negative images about the status of the teaching profession could likely dissuade education graduates' willing to supply labour.

Few studies have documented the impact of availability of alternative opportunities on the teacher labour supply. Court, et al (1995), using the labour force survey in UK, showed that aggregate labour market conditions particularly in terms of unemployment levels were specifically important in the supply of teachers. Dolton, et al (2003) support these findings with time series data. Notably, they found that the supply of graduates to teaching is counter-cyclical with most graduates' perceptions of teaching and willingness to enter the profession improving when graduate prospects are poor in alternative occupation and when graduate unemployment is high. Thus the availability of alternative employment could also predict the decision of graduates not to enter the teaching profession.

Teacher Deployment Systems and Practices

Generally, two systems of teacher deployment exist: 'market system' and 'centralized deployment system'. Most African countries including Malawi use the centralized deployment system (Mulkeen, et al; 2007). This system usually incorporate a greater element of compulsion in posting, as this offers the only way authorities faced with an overall teacher shortage can provide graduate teachers to all schools including the least desirable from the teachers point of view (Ankrah-Dove, 1982). When compulsory posting is the rule, the question must be whether graduate teachers are prepared to be posted to undesirable locations/schools or decline to enter the profession altogether. Studies in Malawi and other Sub-Sahara African countries show that graduate teachers are reluctant to accept posting in remote areas or certain schools (Gottelmann-Duret & Hogan, 1998; Hedges, 2002; Shibeshi, 2009). These studies reveal that female teachers may be even less willing to accept a rural posting than their male counterparts. Hedges (2002) shows that while in Ghana female teachers are not in general to be posted to rural areas as a matter of policy, specifically, there is profound fear among parents that their daughters may lose their 'marriage market'. Kadzamira (2006) indicates that in Malawi, relatively well educated single women from urban background feel that moving to rural areas could restrict their opportunity to find a husband of similar or higher level of education. Mulkeen (2010) found

that in some cases rural communities may not accept the arrival of an unmarried female teacher due to religious and cultural factors. This shows that Sub-Saharan African countries face numerous teacher deployment challenges which can also predict the graduates' decision to decline to enter the teaching profession.

RESEARCH DESIGN

This study followed the quantitative approach, and adopted the cross-sectional design. Teacher wastage was investigated among different cohorts of education graduates from Chancellor College from 2005 to 2009 but data were collected at a single point in time although the actual time took approximately six months to complete data collection. Data were collected from the entire population of education graduates from 2005 to 2009, a saturation inquiry or census (Muijs, 2004). A total of 760 education graduates from Chancellor College from 2005 to 2009 formed the units of analysis. The rationale for the saturation inquiry was that it could have been meaningless to investigate the wastage rate of a sample and utmost impossible to use it to make projections for educational planning purposes. The five years education graduate cohort was used since projections in educational planning require base data of not less than four years (Chang, 2003).

DATA COLLECTION TECHNIQUES

The study employed the document analysis, structured interviews and structured questionnaire. Official administrative documents from University of Malawi central offices, Chancellor College and Ministry of Education, were analyzed to obtain secondary data relevant to the study. A preliminary analysis of the documents was conducted to cross-check the data from the different sources. The actual analysis of documents took the form of categorical analysis (Sarantakos, 2005) where two sets of pre-determined categories guided the analysis: (1) Graduates that entered teaching profession after graduation and (2) Graduates that declined to enter teaching profession after graduation. The University of Malawi entrance examination results books (of 2000, 2002 to 2004) and education graduates lists of 2005 to 2009 were analyzed to collect data for education graduates. The Ministry of Education staff returns were analyzed using a validated list of education graduates from 2005 to 2009 to collect data on the first research question. The pre-determined variables which were supposed to relate on both documents were the First name, Surname, Academic qualification (Bachelor of Education- *abbreviated as BEd*), College where trained (Chancellor College-*abbreviated as Chanco*) and Sex. In addition, Year of first appointment was supposed to be in exactitude with year of graduation. Using the technique, 367 education graduates (48.3% of the total respondents) appeared on the staff returns indicating that they entered the teaching profession after graduation.

Structured interviews were conducted with education graduates who could not be traced using secondary data. The interviews were administered through internet and telephone. Using the internet, data were collected from 333 education graduates (43.8% of the total respondents) while telephone interviews were conducted with 60 respondents (7.9% of the total respondents).

A structured questionnaire was used to collect data from graduates who declined to enter the teaching profession. 8.8% of the questionnaires were physically delivered to respondents, 74.7% were e-mailed while telephone administered questionnaires were used to collect data from respondents who could not be reached by mail and constituted 16.5% of the total

administered questionnaires. A total of 87 education graduates from 2005 to 2009 who declined to enter the teaching profession were eligible to complete questionnaires, but only 79 respondents consented and 72 respondents completed the questionnaires resulting in an overall response rate of 82.8%.

DATA ANALYSIS TECHNIQUES

The data were entered and analyzed through the Statistical Package for Social Sciences (SPSS 16.0). Two statistical techniques were used: the Chi-square (χ^2) Test of Homogeneity, and Standardized Residual (R). Descriptive statistics (i.e. frequency, percentages, mode, means and standard deviation) were also generated to analyze data for the last two research questions. As a test of homogeneity, the χ^2 was computed to test whether there was a difference in the proportions of education graduates that declined to enter the teaching profession among the five independent cohorts from 2005 to 2009. The technique was used to analyze data for the first research question. The analysis tested the null hypothesis (H_0): There was no difference in the wastage rates among the cohorts. The degrees of freedom (df) associated with this test statistic was $(R-1)(C-1) = (2-1)(5-1) = 4$ and the critical value for the test statistic ($\chi^2_{0.05}$) was 9.488. Similarly, the study computed the χ^2 test of homogeneity to analyze data for the second research question. The analysis tested the null hypothesis (H_0): There was no difference in the wastage rates in terms of gender. The 2x2 contingency table of entrance into the profession (Declined/Entered) and sex of graduates was used and the critical value associated with this test was $\chi^2_{0.05}(1df) = 3.84$. In the event where the χ^2 test was significant, the study further calculated the standardized residuals (R) to specify which cells were major contributors to the significant χ^2 value.

VALIDITY AND RELIABILITY

The study guaranteed the independence of the researcher through the use of structured data collection instruments. The design of the study was appropriate as it enabled the collection of five years base data to yield the wastage rate of education graduates from 2005 to 2009. Basically, the ideal wastage rate to be used for making projections in educational planning requires base data on not less than four years (Chang, 2003). The variables or constructs used in the study were delineated from carefully examined pre-existing theories and research findings to enhance the quality of the measures. The content of the secondary data were comprehensive and thoroughly covered the intended variables without which, all dubious secondary data were discarded. Since the study used the total population of education graduates from 2005 to 2009, the results can be generalized to all education graduates from Chancellor College. With regard to issues of reliability, the secondary and primary data collected by the study to answer the first two research questions were factual, (i.e. either an education graduate was 'male' or 'female'; 'entered the profession' or 'declined') denoting that the results of the study were amenable to replication.

RESULTS OF THE STUDY

Wastage Rates of Education Graduates

The results show that 15.2% of the 2005 graduates, 15.3% of the 2006 graduates and 7.5% of the 2007 education graduates declined to posting and never entered the teaching profession. Similarly, 11.8% and 11.4% of the education graduates of 2008 and

2009 respectively did not enter the teaching profession. This culminated into a 12.0% wastage rate of education graduates from Chancellor College from 2005 to 2009. The figure below displays the wastage rates of education graduates in each cohort.

Figure 1: Wastage rates of Chancellor College education graduates from 2005 to 2009

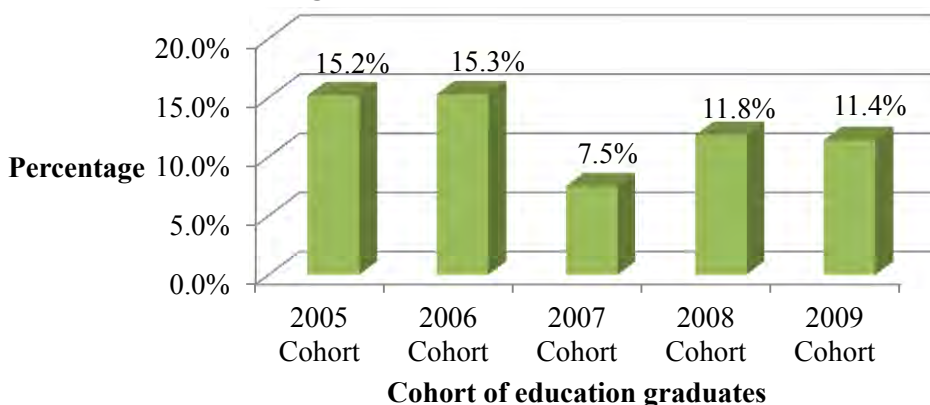


Table 1 below shows the observed and expected frequencies used by the study to calculate the χ^2 test of homogeneity. The calculated χ^2 (4df) = 8.681, $p = 0.226$ and did not exceed the critical value $\chi^2_{0.05}$ (4df) = 9.488. Therefore, the study failed to reject the null hypothesis and concluded that the wastage rates among the different cohort of education graduates from 2005 to 2009 were homogeneous.

Table 1: (2x5) Contingency tables for Calculating the χ^2 Test of Homogeneity for Wastage Rates.

		Cohort of the graduates					Total
		2005	2006	2007	2008	2009	
Entrance into teaching after graduation	Declined	15 (11.8)	23 (17.9)	12 (19.1)	18 (18.2)	19 (20.0)	87
	Entered	84 (87.2)	127 (132.1)	148 (140.9)	134 (133.8)	148 (147.0)	641
Marginal Total		99	150	160	152	167	728

*In brackets are expected frequencies while the values not in brackets are observed frequencies.

Wastage Rate of Education Graduates and Gender

The 2x2 contingency table of entrance into the profession and sex of graduates shown below was used to calculate the χ^2 test of homogeneity. The analysis tested the null hypothesis (H_0): There was no difference in the wastage rates in terms of gender.

Table 2: (2x2) Contingency table of Entrance into Teaching and Sex of Graduates

		Sex of Graduates		Total
		Male	Female	
Entrance into the teaching profession after graduation	Declined	59 (67.2)	28 (19.8)	87
	Entered	503 (494.8)	138 (146.2)	641
Marginal Total		562	166	728

*In brackets are expected frequencies while the values not in brackets are observed frequencies.

The calculated value of χ^2 (1df) = 4.992, $p = 0.03$ exceeded the critical value of $\chi^2_{0.05}$ (1df) = 3.84. Thus the null hypothesis was rejected denoting that the wastage rates were different between male and female education graduates from 2005 to 2009. The study further calculated the standardized residuals (R) for each category and the residuals are found in Table 3 below.

Table 3: Standardized Residuals (R) For Declining Posting by Gender

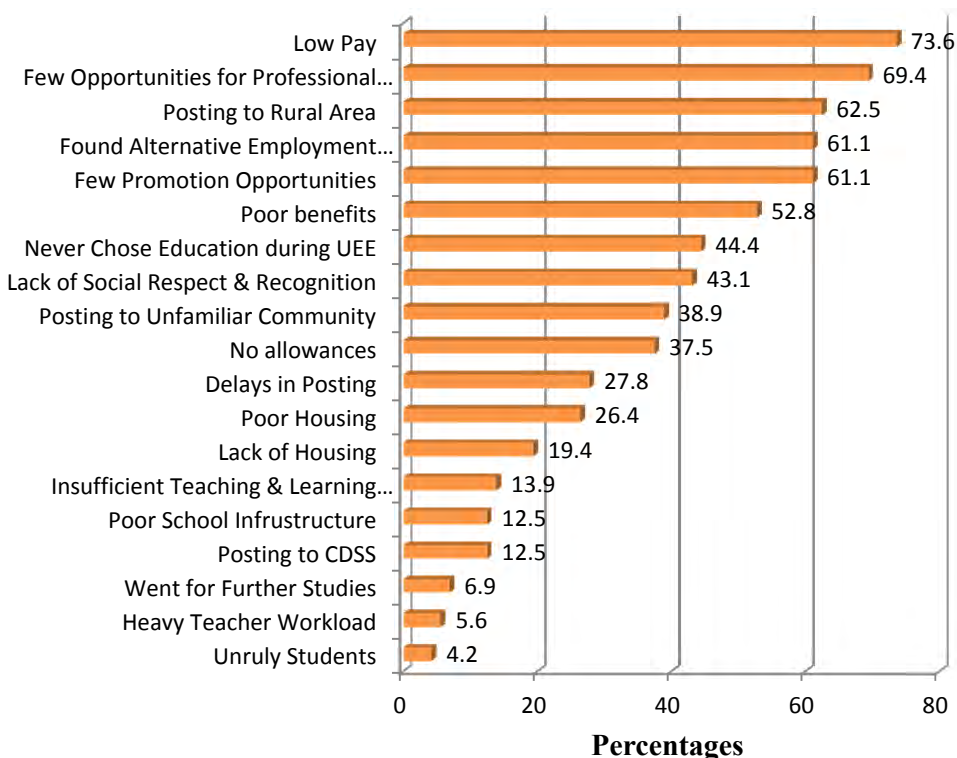
		Sex of Graduates	
		Male	Female
Entrance into the teaching profession after graduation	Declined	-1.000	1.842
	Entered	0.368	-0.678

Findings from Table 3 show that R=1.842 is the only value that approximated 2.00 while the rest of the values were very negligible. This suggests, in comparing the observed and expected frequencies, there were more females and less males than expected who declined to enter the teaching profession.

Most cited Reasons why Education Graduates from Chancellor College declined to enter the Teaching Profession

Education graduates who declined to enter the teaching profession indicated on the multiple response categories the main reasons why they did not join teaching after graduating. Figure 2 below shows a summary of results.

Figure 2: Reasons for not joining the Teaching Profession after graduation



The mode computed by the study generated a multimodal where low pay 76.6%, few opportunities for professional development 69.4%, posting to rural area 62.5%, found alternative employment opportunity 61.1%, few opportunities for promotion 61.1% and poor/lack of benefits (scholarships, loans and medical scheme) 52.8% emerged as the most cited reasons for declining to enter the teaching profession.

Importance Of The Cited Factors To The Decision Of Education Graduates To Decline To Enter The Teaching Profession

Education graduates also indicated on a four point Likert scale ranging from 1 (Not at all Important) to 4 (Very Important) the most important factors that influenced the decision not to join teaching. Data were summarized into means and standard deviations. The four point Likert scales were further collapsed into two categories of “important” and “not important” and the analysis revealed that the most cited factors (i.e. with high mean scores) varied in their importance to influence the graduate’s decision to decline to enter the teaching profession. Table 4 shows the frequencies and percentages of the most cited factors in relation to their importance.

Table 4: Frequencies and percentages of most cited factors in relation to their Importance

IMPORTANT		
Most cited Factor for declining Teaching	Frequency	Percentage
1. Opportunities for Professional Development	62	86.1
2. Level of Teacher Salary	59	81.9
3. Availability of Alternative Employment	57	79.2
4. Availability of Other Benefits	56	77.8
5. Posting to a School in Rural Area	55	76.4
6. Teacher Posting Process	54	75
7. Opportunities for Promotion	53	73.6

NB: The total Frequency for each factor was 72

Table 4 shows that, availability of opportunities for professional development was the most important factor, rated by the highest percentage of graduates (86.1%). The second most important factor was teacher salary (81.9%) while availability of alternative employment (79.2%) was the third most important factor. The availability of other benefits rated by 77.8% of the graduates as “important” was fourth, while the fifth factor in order of importance was posting to a school in rural area (76.4%). The sixth and seventh important factors consecutively were teacher posting process (75%) and opportunities for promotion (73.6%).

DISCUSSION OF RESULTS

Wastage of Education Graduates

The 12.0% wastage rate of education graduates implies that from every cohort of 100 education students from Chancellor College, 12 are likely to decline to enter the teaching profession after graduation. Generally, in educational planning wastage and attrition rates exceeding the ranges of 3% to 5 % are regarded detrimental to the education system. However, studies show that teacher wastage continues to be a challenge in many countries across the globe. Smithers and Robinson (2000) show that well over 40% of those who train as teacher do not enter the teaching profession in England and Wales. About 25% of credentialed teachers never joined teaching in California (Bullard, 1998) while Henke, Chen and Geis (2000) show that overall, about 28% of college graduate teachers declined to enter the teaching profession in United States of America. In the larger context of teacher shortage currently facing countries including Malawi, such wastage rates when combined with teacher attrition emanating from teacher resignation, retirement, death and transfer to non-teaching posts further complicates the problem of qualified teacher shortages. Teacher wastage also signifies a huge opportunity cost to the education system. The financial resources developing countries invest in training education graduates who do not join teaching represent a big loss to the education sector. For instance, it costs the government of Malawi about US\$ 30,000 to train an education student at the University of Malawi, meaning that for every 12 education graduates from the cohort of 100 who decline

to join teaching, the government spends about US\$360,000, an amount which can be used to train about 412 primary school teachers.

The study further revealed some gender differences in the decision not to join the teaching profession. Proportionally, more female education graduates declined to teach than their male counterparts. Comparatively, this was contrary to findings of studies from other countries particularly Middle East, United States of America and European countries which portrayed the teaching profession as a feminine career due to the high proportion of female compared to male teachers who join teaching in such countries (Al Kaabi, 2005; Allison, 1982; Ilaiyan & Zidan, 2005; Kizilaslan, 2010; Purcell, et al., 2005). It is possible that while gender differences in the decision not to teach have been observed by many studies, the question of which gender was more likely to decline to enter teaching varies among countries. However, with lower female student enrollment in many universities in Sub-Saharan Africa (World Bank, 2010), the higher proportion of female education graduates that declined to enter the teaching profession poses a peculiar challenge where both the primary and secondary education systems grapple with the problem of very low participation and retention rates of girls compared to boys. Certainly, participation of female graduate teachers is supposed to be an encouragement to girls to stay in school hence a paramount factor in creating gender role models.

Factors Influencing Teacher Wastage

The study established that there were six most cited factors which varied in their importance in influencing education graduates to decline to enter the teaching profession. Opportunity for professional development was rated as the most important factor. It is not surprising that education graduates cited the existence of few opportunities for professional development in the teaching profession as a deterrent. The problem seems to be more pronounced as graduates who joined other departments of the civil service get more chances for professional development while teachers were under-privileged. These findings suggest that teacher professional development cannot be underestimated in attempts to reduce the problem of teacher wastage. Generally, further training on a job facilitates the fulfillment of the need for personal and professional advancement as well as the creation of good chances of promotion. Therefore, considering professional development structures for graduate teachers that offer differentiated roles and commensurate pay is necessary. Carefully structured career ladders coupled with the provision of opportunities for professional development would be attractive to education graduates as they would offer promises of advancement and role differentiation. Similarly, the professional development programmes spearheaded by donors who only occur in project forms on ad hoc basis in most developing countries including Malawi should be institutionally established within the Ministry of education and designed not only to improve the quality of education, but also to upgrade secondary teachers to take posts of responsibilities.

Level of teacher salary was the second most important factor. Education graduates cited low pay in the teaching profession as another reason contributing to teacher wastage. This corresponds to findings of various studies that investigated the teacher labour market (Armstrong, 2009; Chen, 2009; Chung, et al., 2004) and confirms Zabalza's (1979) theory that lower relative wages in teaching have a major influence on dissuading education graduates from choosing the teaching career. Policy makers and education planners need

to take seriously the challenge of increasing teachers' salaries. There is no doubt that the teaching profession is up against other more rewarding occupational opportunities open to graduates yet it needs a large number of recruits annually to cover for the acute shortage of qualified teachers. Consequently, the logic of wanting lots of qualified graduate teachers is that salaries should be pitched far above average. Teachers should also be explicitly rewarded financially for carrying managerial responsibilities and other duties and for performing specific tasks such as working not only in rural but also other disadvantaged areas.

The third most important factor influencing teacher wastage was availability of alternative employment. The impact of alternative employment seems to defy boundaries as studies reported from United Kingdom and other OECD countries also found that the supply of graduates to teaching was counter-cyclical with most graduates' perceptions of teaching improving when prospects were poor in alternative occupations and when graduate unemployment was high (Corcoran, et al., 2002; OECD, 2005). Unfortunately, this may be a paradox as education planners can hardly control alternative employment opportunities at the disposal of education graduates if conditions of service in the teaching profession are not competitive. However, making the teaching profession more attractive by addressing the fundamentals that draw people to an occupation would ensure that a sufficient supply of education graduates enter teaching.

Poor or lack of other benefits like scholarships, loans and medical scheme in the teaching profession was the fourth most important factor in deterring education graduates from joining teaching. These according to the human capital theory of occupational choice (Grissmer & Kirby, 1987, 1993) constitute other important monetary benefits whose presence has a marked influence on the decision to join a particular occupation. Apparently the absence or inadequacy of such benefits in Malawi greatly influenced respondents in the study to decline to enter teaching. Therefore policy makers and planners should consider introducing benefits like soft loans, medical schemes and others for teachers. There are so many benefits educational planners can explore to make teaching attractive such that the limits are set by the imaginations of those responsible for formulating the salary and benefits policies.

Posting to a school in rural area and the nature of the posting process were rated fifth and sixth in the importance to influence teacher wastage respectively. The education graduates showed that they were unwillingness to work in schools in the rural area. This defeats the whole purpose of government's centralized deployment system employed by countries in Sub-Saharan Africa where teachers are deployed depending on the prevalent vacancies. Even with compulsion the study shows that graduate teachers were not prepared to accept posting to 'undesirable locations' regardless of policy, but rather opted to decline to join teaching. However, it would be necessary to continue the rational teacher deployment system practiced in Malawi and many other Sub-Sahara Africa countries to prevent teacher disparities but responsible personnel for posting graduate teachers should refrain from using compulsion and alternatively incorporate negotiation with the respective education

graduates in the posting process. The ministry of education can also offer compensation wage differentials such as hardship allowances to education graduates who would opt to teach in schools in rural areas.

Lack of opportunity for promotion was cited as another factor influencing teacher wastage, although in terms of the degree of importance, it was the least. The data collected in the study revealed that education graduates who had worked for five years were still on the initial grade for graduates with a Bachelor's Degree in the Malawi Civil Service. This indicates that there is a less likelihood that education graduates got promotional opportunities. Urwick, et al. (2005) also found that despite that graduate teachers were treated as civil servants equivalent with other graduates in different occupations within the civil service in most Sub-Sahara African countries, individuals in other occupation could be promoted more rapidly while teachers were hardly promoted when they were due for promotion. However, promotion has an instrumentality role in helping one to obtain outcomes such as more money and a higher status which would certainly influence education graduates to join teaching. Therefore, the Ministry of Education should establish posts and do away with unhealthy style of appointments on administrative arrangements in order to offer promotional opportunities for such created posts. The traditional practice of conducting interviews as a promotional procedure should be coupled with performance appraisals to ensure that only deserving teachers are promoted. Incorporating performance appraisals, in the promotion procedures would likely instill the hard working spirit in teachers, which would contribute to improved performance of students and the quality of education.

CONCLUSION

The key contribution of the study is the quantification of the wastage rate of education graduates from Chancellor College 12.0%. This finding is a significant contribution to literature on educational planning as it confirms that besides recruitment problems to teacher education and the high secondary teacher attrition rates, teacher wastage is another significant contributor to the shortage of qualified secondary teachers which should not be overlooked in all attempts to reduce teacher shortages. When planning for teacher supply, it should be a prerequisite to incorporate the wastage rate, without which all teacher planning models would likely underestimate the national teacher requirements. The other key contribution of the study is the gender difference in the decision to decline teaching. Contrary to popular belief that teaching is a feminine career, the findings of this study suggest that the question of which gender is more likely to decline to enter the teaching profession varies among countries. However, the higher wastage of female education graduates is retrogressive in efforts aimed at improving girl's participation and retention in the education system. Certainly, participation of female graduate teachers is supposed to be an encouragement to girls to stay in school hence a paramount factor in creating gender role models. The study further revealed seven most important factors that influenced education graduates to decline to enter the teaching profession after graduation. Availability of opportunities for professional development was rated highly as the most important factor, followed by level of teacher salary then availability of alternative employment opportunities. The other factors in their order of importance were: availability of other benefits, posting to a school in a rural area, the nature of the teacher posting

process and availability of opportunities for promotion. Therefore, it was apparent that most factors that influenced graduate teachers to decline to enter the teaching profession related to teacher attrition factors revealed by studies that investigated why teachers leave the teaching profession after teaching for a short period of time. But, interestingly not all teacher attrition related factors investigated in this present study could also explain the decision of newly education graduates to decline to enter the teaching profession after graduation. Consequently, caution should be made against wholesomely generalizing the teacher attrition factors to teacher wastage.

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