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Teacher self-perceptions of effectiveness: a study in a district of Kenya

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Background and purpose: The paper reports a study of the perceptions of teachers in secondary schools in the Gucha district of Kenya of their own effectiveness, the structure of their self-perceptions, variations in self-perceived effectiveness and the relationship between self-perceptions of effectiveness and the examination performance of their students.
Design and methods: Data were based on questionnaires completed by 109 English and mathematics teachers from a random sample of 30 schools in the Gucha district of Kenya. Pupil examination results were also collected from the schools.
Results: Three dimensions of self-perceived effectiveness emerged from a factor analysis. These were: pedagogic process, personal and affective aspects of teaching and effectiveness with regard to pupil performance. Teachers tended to rate themselves relatively highly with regard to the first two, process-oriented, dimensions but less highly on the third, outcome-oriented, dimension. Self-ratings for pupil outcomes correlated with pupil examination performance at school level.
Conclusions: The results show that these teachers can have a sense of themselves as competent classroom performers and educational professionals without necessarily having a strong sense of efficacy with regard to pupil outcomes.

Keywords: teacher self-perceptions; teacher self-efficacy; secondary education; Kenya

Introduction

In recent years a great deal of attention has been paid by researchers to the question of teacher effectiveness and school effectiveness. Many studies have looked at the association between various aspects of the process of schooling – teaching methods, school organisation, teacher training, resource levels and so on – and the outcomes of schooling – typically, but not exclusively, pupil learning. (For an overview of this work, see Reynolds et al. 2002). Most of these studies have been carried out in the developed world but there has been an increasing body of work on educational systems in developing countries (Scheerens 1999; Saunders 2000, Onderi and Croll forthcoming). In contrast, however, very little work has considered school and teacher effectiveness from the point of view of teachers. Of course this is not to say that that teachers' sense of personal effectiveness has not been studied. There is a considerable body of work, especially from the United States, concerned with

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teacher self-efficacy – how teachers see their own capacities with regard to the process and outcomes of schooling (Tschannen-Moran, Woolfolk Hoy and Hoy 1998; Tschannen-Moran and Woolfolk Hoy 2001) – but this has not been explicitly linked to the teacher effectiveness and school effectiveness movement, which is the context in which the present research was conducted. In the present paper, we shall be considering how secondary teachers in a district of Kenya see their own personal effectiveness and how these perceptions relate to other evidence on their effectiveness. The discussion will also draw on the teacher self-efficacy literature and, to a large extent, teacher self-perceptions of effectiveness and self-efficacy are the same. However, the term effectiveness is used here both because this was how it was presented to the teachers and because of the link with school and teacher effectiveness in the wider study (Onderi forthcoming; Onderi and Croll forthcoming).

As part of a study of the in-service education needs in the Gucha district of Kenya, a sample of secondary school teachers were asked about how they rated various aspects of their performance and skills as teachers. This provides a measure of self-perceived teacher effectiveness. Additionally, results were obtained for the performance of students in the schools in a public examination. These data make it possible to consider: (1) how effective teachers saw themselves as being overall, (2) the extent to which self-perceived effectiveness varied across different areas of teacher performance, (3) the extent of variation between teachers in self-perceived effectiveness and (4) the relationship of self-perceived effectiveness and student examination performance.

The analysis brings a new dimension into the study of teacher effectiveness by considering teacher' own views on their personal effectiveness and the extent to which these views relate to evidence for effectiveness measured by student performance.

The idea of teacher's views on their own effectiveness is part of a tradition of research on the notion of teacher self-efficacy as described above. This work, which is usually traced back to a seminal paper of Bandura (1977), is located within a wider concern in social psychology with ideas of self-efficacy, the extent to which people believe in their own power to influence their lives and their environment and the extent to which they attribute outcomes in their lives to their own actions and qualities. With reference to teachers, these ideas refer, in particular, to the extent to which people feel that they as teachers have the capacity to carry out the work of a teacher appropriately and to effect educational change in their students. Tschannen-Moran, Woolfolk Hoy and Hoy (1998) characterise this in terms of the related ideas of teacher perceptions of their competence and teacher perceptions of their capacity to influence levels of student performance. In contrast to the positive perceptions of teacher efficacy is the view, held by some teachers, that the effects of student's innate characteristics and their home environment are such that the influence of the teacher is very limited.

Research in the area of teacher efficacy has usually been psychometric in nature and has involved devising scales intended to measure levels of teacher self-perceptions of efficacy. As Tschanen-Moran et al. (1998) point out there is an element of 'lack of clarity' in the concept arising from different conceptualisations of what is meant by self-efficacy and different attempts at operationalisation. In particular, while some elements of the scales relate to teachers' feelings that they have the personal capacity to perform their jobs, '... one's own feelings of competence as a teacher.' (Tschanen-Moran et al. 1998, 223) other aspects measure

teachers' sense of their ability to influence student performance, to ' ... bring about desired outcomes.' (Tschannen-Moran and Woolfolk Hoy 2001, 783). A similar distinction is made by Deemer and Minke (1999) in considering the factor structure of a teacher efficacy scale where they argue that it consists of two elements – a sense of personal competence and a sense that teachers have an influence on student outcomes. These ideas are picked up in the present study with the notion that a teacher's sense of having or lacking teaching skills may not necessarily be the same as the sense of being able to make a substantial impact on pupil performance.

Methods

Gucha District is one of the 11 districts of Nyanza province, one of the eight regions of Kenya. It is located in western Kenya, approximately 465 kilometres away from Nairobi. It is the second most densely populated district in Nyanza province with a population in the 1999 census of approximately 461,000 (Kisii.com/admin 2007). The economy of the region is mainly based on agriculture. Gucha contains 130 public secondary schools with a total of 22,952 pupils. There are 124,894 pupils in the 474 primary schools (Ministry of Education, Gucha District 2007). As is evident from these figures, only a minority of pupils go on from primary school into secondary education.

The data presented here come from a multi-stage stratified random sample of 30 secondary schools in the Gucha district. Gucha consists of three constituencies, two of which have two divisions and one three divisions. One division was selected at random from each constituency, a total of three divisions. Within each division, 10 schools were selected at random, giving a sample of 30 schools of the 130 schools in the district. Of the original sample of 30 schools, 25 agreed to take part in the study, a response rate of 83.3%. The schools which refused to take part were replaced by the geographically closest school. The main focus of the study was on teacher training needs and the main data collection was from the head teachers and teachers in the schools. All head teachers of the participating schools completed a questionnaire and took part in an informal interview. Questionnaires were also distributed to two teachers of English and two teachers of mathematics in each school, a total of 120 teachers. Questionnaires were received from 109 teachers, a response rate of 90.8%. In addition to the questionnaire data, information was collected from each school on the performance of students in the Kenya Certificate of Secondary Education (KCSE) in 2004, the year before the period of data collection. Schools provided information on the numbers of pupil receiving each grade for English and mathematics. Average KCSE performance in the 30 sample schools was slightly higher than for Gucha overall. The average points score (on a scale of 0–12) was 4.4 for the sample schools and 3.8 for Gucha overall (Onderi and Croll forthcoming).

The schools were mainly District schools which is by far the most common form of secondary education in Kenya. Pupils were drawn from the immediate locality of the school. However, three schools were Provincial schools, a higher status form of secondary education. Pupils in these schools may come from anywhere in the Nyanza province. The schools have relatively small numbers of teachers and pupils, mainly because of enrolment difficulties. The average number of teachers per school was 14.5. This means that the four teachers sampled were usually the only teachers of mathematics and English in the school. Where there were more than two English or

mathematics teachers, selection was made by the head teacher. Questionnaires were completed anonymously and were returned directly to the researcher in sealed envelopes to ensure confidentiality.

The questionnaire to teachers included a question where teachers were asked to rate their own effectiveness on 13 aspects of teaching performance. For each, they were asked to say if they considered themselves 'excellent', 'good', 'average', 'unsatisfactory' or 'poor'. The aspects of teaching performance included a range of curriculum, pedagogic and pastoral and other professional roles as well as direct items dealing with pupil performance. The items are listed in full in Table 1.

The measure of educational achievement used in the present study is the Kenya Certificate of Secondary Education (KCSE). This examination is taken at the end of secondary education when pupils are usually about 18 (although the age at which KCSE is taken varies much more than is the case for equivalent examinations in the UK). Students sit for a minimum of eight subjects at the end of Form Four for the award of KCSE with English, mathematics and Kiswahili as compulsory subjects. KCSE is a national examination set and regulated by the Kenya National Examination Council which is responsible to the Ministry of Education (Marlow-Ferguson 2002, 737). The results are graded on a 12-point scale: A, A−, B + , B, B− ... E, where E is a fail grade. To calculate overall results these grades are scored 12–1.

Although KCSE results are only one aspect of any judgment of teacher effectiveness, they are a key factor in judging both the performance of individual students and the performance of schools. For students, KCSE results determine whether they are eligible for university admission and for other sorts of further education and KCSE outcomes are central to judgments made about secondary education in Kenya. The personal experience of one of the authors as a secondary school head teacher in Kenya confirms pressures on schools, parents and students

Table 1. Teachers' self-ratings of effectiveness: how far do you consider yourself an effective teacher in the following areas?

	Excellent %	Good %	Average %	Unsatisfactory %	Poor %	*n*
Class management	45.8	50.5	3.7	0	0	107
Subject knowledge	63.0	34.3	2.8	0	0	108
Student performance in classroom	13.1	35.5	45.8	5.6	0	107
Student performance in national examinations	3.7	31.2	55.0	9.2	0.9	109
Student performance in sport	2.8	24.3	59.8	12.1	0.9	107
Identifying student needs and problems	18.5	57.4	23.1	0.9	0	108
Good counsellor	21.6	53.2	23.4	1.9	0	107
Collaboration with colleagues	35.8	56.0	7.3	0.9	0	109
Good networking system	12.0	53.7	29.6	4.6	0	108
Good in research and development	21.5	46.7	24.3	6.5	0.9	107
Effective communicator	35.5	54.3	9.3	0.9	0	107
Good at information technology	13.7	33.3	33.3	9.8	9.8	102
Good example (discipline, time keeping, conscientious)	50.5	38.9	10.2	0	0	108

created by KCSE and the fact that it is regarded in Kenya as the only real indicator of secondary school effectiveness.

Results

Teacher self-ratings of effectiveness

The results of the teachers' self-ratings on the 13 items of effectiveness are presented in Table 1. Not surprisingly, there was strong tendency for teachers to use the positive end of the scale. Teachers tended to rate themselves as varying between excellent and average with few people rating themselves as unsatisfactory or poor on these items. Nevertheless there was a considerable degree of variation in responses across the items and it was certainly not the case that most teachers simply rated themselves strongly in all areas. The pattern of answers suggests that while there is almost certainly an upward bias in self-ratings there is also a willingness to reflect self-critically on strengths and areas where they are less positive about their performance.

There is one group of items where teachers rated themselves particularly positively with 90% or more saying that they were at least 'good'. These items include core competences of teaching such as class management, subject knowledge and communicating. They also include desirable personal qualities such as collaboration with colleagues and setting an example through personal conduct. These were areas where no one rated themselves as less that average and most said that they were excellent or good. Over 60% said they were excellent in subject knowledge and 50% said that they were an excellent example through their own conduct.

A second set of items were those for which between two-thirds and three-quarters of the teachers thought that they were at least 'good'. These items included awareness of student problems, being a good counsellor, research and development, and networking. Teachers were positive about their effectiveness in these areas but not to the same extent as for the first group, and there was more of a tendency to see themselves as 'average' and, just occasionally, as 'unsatisfactory'. These are clearly desirable competences, especially with regard to affective and inter-personal aspects of the teacher's role, but may be seen as less of a central requirement of a teacher.

In the case of four items, fewer than half the teachers rated themselves as better than average. These included student sporting performance, the least highly rated of all and an area where many teachers may not have felt a professional responsibility. They also included information technology which, as well as having lower than average overall effectiveness ratings, was the area with the highest variation among teachers and the only one where some teachers regarded themselves as poor. This variation in self-perceived IT skills would probably be the same for any group of teachers but is especially likely in the case of Gucha. Access to IT resources is extremely variable across the Gucha schools and some teachers would have had virtually no opportunity to develop this expertise.

What is especially striking is the relatively low self-rating with regard to student performance. Just under half the teachers rated themselves as good or better with regard to performance in the classroom and only just over a third said that they were at least good with regard to student examination performance. These results show that the teachers were much more likely to rate themselves highly with regard to the process of teaching, such as knowing their subject and managing their classes, than

they were to consider themselves effective with regard to the outcomes of teaching, especially externally assessed outcomes. Examination results are very important within the Kenyan education system so these relatively low ratings could be seen as a negative aspect of teacher self-perception. However, teachers are also conscious that they are externally controlled and dependent on pupil ability. This relates to issues of self-efficacy discussed above and to which we return in the conclusion.

The structure of self-ratings of effectiveness

The 13 items on which teachers were asked to rate themselves with regard to teaching effectiveness covered a wide range of aspects of teaching. However, they all related to a self-perception of effectiveness and the question therefore arises of whether they can be combined into an overall 'self-effectiveness' scale. In addition to the question of whether they can be regarded as a single scale is the question of whether there are sub-scales within an overall scale. Some of the items seem to have much more in common than others and may relate to particular dimensions of effectiveness.

In order to test whether the 13 items formed a scale, a reliability analysis using Cronbach's alpha was calculated. This produced a value of 0.78, well above the value of 0.7 normally regarded as being sufficiently reliable for psychometric purposes. It should be emphasised that alpha is only one approach to scale reliability. It is used to measure the internal consistency of the scale and not, for example, its stability over time. A common interpretation of Alpha is that it is the mean of all possible split half reliability coefficients, although, as Cortina (1993) demonstrates, this is an approximation depending on characteristics of the items. It also does not in itself demonstrate that the scale is unidimensional (Cortina 1993). In fact the factor analysis described below shows that this scale has sub-dimensions. This means that the overall self-rated effectiveness scale, based on summing the scores on the 13 items, should be regarded as an aggregate of the three inter-related effectiveness sub-scales.

In order to test for sub-scales relating to different aspects of effectiveness, a factor analysis was performed on the 13 items. Based on an examination of the scree plot, a three-factor solution was chosen and a Varimax rotation was conducted. The factor loadings of the 13 items on the three factors is presented in Table 2. Only loadings of 0.5 or greater have been included in the table. All but one of the items (student sporting performance) loaded higher than 0.5 on one or other of the factors.

The pattern of factor loadings is coherent and relates to clearly distinct aspects of effectiveness. The first factor has been labelled, 'Pedagogic skills' and relates to competent performance of the teacher role. It includes class management, subject knowledge, communication, research and development and IT. The second factor has been labelled 'Personal qualities and relationships'. This relates to inter-personal aspects of the teachers' role and 'people skills' and includes counselling, awareness of student problems, collaboration and personal qualities. The third factor has been labelled 'student performance'. The items loading most strongly are effectiveness with regard to student performance in the classroom and student performance in examinations. The item, 'good networking system' is less obviously related to the other items but may be linked through an awareness of examination requirements and the need for parents to support children academically.

The first and third factors can be seen as relating to the academic purposes of teaching. Factor 1 relates to the 'process' aspect of being an effective teacher –

Table 2. Factor structure of the self-rating scale: factor loadings (0.5 and above).

Aspects of effectiveness	Pedagogic skills	Personal qualities and relationships	Student performance
Class management	0.72		
Subject knowledge	0.55		
Student classroom performance			0.84
Student examination performance			0.85
Student sporting performance			
Identifying student needs and problems		0.64	
Good counsellor		0.80	
Collaboration with colleagues		0.64	
Good networking system			0.53
Research and development	0.54		
Effective communicator	0.68		
Good at information technology	0.68		
Good example (discipline, time keeping, conscientious)		0.69	

knowing the subject, managing the class, communicating and so on. Factor 3 relates to the 'outcomes' aspect of effective teaching – getting results in the classroom and in examinations. This distinction has a similarity with the different dimensions of teacher efficacy observed in some of the studies discussed above. These distinguished between efficacy as a sense of personal competence (process) and efficacy in influencing student outcomes (outcomes). The second factor reflects the non-academic and inter-personal aspects of being an effective teacher – handling inter-personal relations, being sensitive to student needs and problems and being an example in terms of personal conduct. Within the socio-cultural context of Kenya, these are important parts of the teacher role. Parents tend to look to teachers for guidance when they have problems with their children. As was apparent in the discussion of how highly teachers rate their effectiveness, the teaching process and the inter-personal and affective side of teaching were generally highly rated. Effectiveness in terms of pupil outcomes was less highly rated.

Variations in self-ratings across groups of teachers

The analysis reported above showed that the 13 items could be regarded a reliable scale of self-rated effectiveness, albeit one consisting of three dimensions. It was therefore possible to calculate an effectiveness score for each teacher based on adding the scores for the 13 items. This scale has a possible range from the most effective score of 13, showing that a teacher rated themselves as excellent on every item, to a score of 65, showing that a teacher rated themselves as poor on every item. The average for the whole sample was 27.5, indicating an average rating fractionally below good. In Table 3, the average scores of different groups are compared to see if there are systematic differences in the self-rating of groups of teachers defined by demographic or educational characteristics. The table presents differences between men and women, teachers with different amounts of teaching experience and teachers with different initial teaching qualifications and continuing professional development course (CPD) experience.

Table 3. Differences in average self-rated effectiveness by gender, experience and training.*

					Statistical significance of difference
Gender	Male	Female			
Mean	27.4	28.4			$F = 0.40$ ns
n	94	15			
Experience	0–5 years	6–10 years	11 + years		
Mean	27.6	27.0	27.6		$F = 0.09$ ns
n	56	24	28		
Qualifications	None	Diploma	BEd	BA + PGDE	
Mean	35.7	27.3	26.9	29.7	$F = 1.26$ ns
n	3	11	79	15	
CPD experience	Yes	No			
Mean	26.9	28.8			$F = 2.78$ ns
n	64	42			

Note: *This was a 13-item scale rated from 1 (Excellent) to 5 (Poor).

In general, the figures in Table 3 show very little difference between different groups of teachers in the way they rate their own effectiveness. Most of the differences in the table are only one or two points, showing an average difference of one rating grade on one or two items of a 13-item scale. None of the differences was statistically significant. Male teachers are marginally more positive than female teachers but only by one point. There are no differences in self-rated effectiveness for more and less experienced teachers. This may be surprising in that it might have been expected that more experienced teachers might both be, and see themselves as being, more effective. However, this result matches the findings of Sammons and her colleagues (2008) in their study of teachers in England. In this study of 300 primary and secondary school teachers there was, 'no ... association between age or years of experience and teachers' relative effectiveness' (Sammons et al. 2008, 692).

The one result that stands out from the table is with regard to teacher qualifications. The small number of unqualified teachers in the sample had very much lower levels of self-perceived effectiveness. There are only three teachers in this group and the differences are not statistically significant, but it makes sense intuitively that they are less confident of their performance than other teachers. Teachers who had experience of CPDs were more positive than those who had not although, again, the differences are small. Onderi and Croll (forthcoming) in another analysis of these data have shown that having CPD experience is correlated, although fairly weakly, with pupil examination outcomes. In general the analysis shows considerable similarity between different groups of teachers in levels of self-perceived effectiveness.

Teacher self-ratings for effectiveness and pupil examination outcomes

In addition to the data gathered from head teachers and teachers, the study also collected information on the examination performance of pupils in the 30 schools in the KCSE. A comparison of the self-ratings for effectiveness and the examination results makes it possible to consider the relationship between how the teachers rated their personal effectiveness and how pupils in their school performed in an important

public examination. It should be emphasised that this is a school level analysis. It is not possible to match the results for particular children with the teacher who taught them (and they may also have been taught by more than one teacher). What the analysis shows is the relationship between the average self-ratings of effectiveness for teachers in a school and the performance of pupils from that school. Although individual teachers cannot be matched to examination results, as noted above, the small size of the schools means that the teachers in the sample represent, on average, more than a quarter of the teachers in the schools and almost all the English and mathematics teachers.

The variables to be considered are: (1) the overall level of self-rated effectiveness derived from adding together the 13 effectiveness items. The reliability analysis reported above shows that the items can be treated as a single scale. (2) The specific item relating to their effectiveness with regard to examination performance. These variables were averaged for teachers in each school, first to give scores for all teachers in the survey and then separately for mathematics teachers and English teachers.

In Table 4, the Pearson product-moment correlations are given between these scores and examination performance of pupils in the school. First the correlations between the self-rated effectiveness scores for all teachers and the combined mathematics and English examination results are shown. Then separate correlations are given between the self-ratings of mathematics teachers and the performance in the mathematics examination and the self-ratings of English teachers and performance in the English examination.

The results in Table 4 show that there are positive correlations between how teachers rate their own effectiveness and their pupils' examination performance. This is especially so with regard to the correlation between self-rating with regard to examination performance but there is also a weak correlation between examination performance and overall self-rating. The combined mathematics and English results correlate 0.22 with overall effectiveness and 0.46 with effectiveness in examination performance. The equivalent figures for mathematics are 0.17 and 0.43, and for English are 0.11 and 0.20. These results show that how teachers rate their own performance in getting good examination results is a moderately good predictor of how their pupils perform in public examinations. How they rate their overall effectiveness is a weak but positive predictor of examination performance. These

Table 4. School-level correlations (Pearson product moment) between average self-ratings of teachers and the examination performance of students ($n = 30$).

	Exam scores		
All teachers	Maths plus English	Mathematics only	English only
Overall self-rating for effectiveness	0.22		
Self-rating on examination performance	0.46		
Mathematics teachers			
Overall self-rating for effectiveness		0.17	
Self-rating on examination performance		0.43	
English teachers			
Overall self-rating for effectiveness			0.11
Self-rating on examination performance			0.20

correlations are strongest for the combined subjects and for mathematics alone but are rather weaker for English alone. Other analyses of the examination data (Onderi and Croll forthcoming) have shown stronger correlations between mathematics results and various characteristics of the schools and teachers than is the case for English results.

Conclusion

The analysis has shown that teachers are able to rate themselves in terms of professional effectiveness and are able to distinguish between various aspects of their work in which they feel more and less effective. This provides a new perspective on teacher and school effectiveness research in that it incorporates teachers' own views into analyses of effectiveness and allows these views to be tested against more traditional effectiveness measures such as examination outcomes.

The teachers in the present study were generally positive about themselves as effective practitioners with a strong sense of classroom competence and appropriate personal and professional qualities. They believed that they know their subject, managed their classes, worked with colleagues, were sensitive to the needs of students and set a good example through their own conduct. However, in the area of securing good student academic outcomes, especially outcomes in external examinations, they had a rather weaker sense of their effectiveness. The self-ratings of effectiveness were related to one another in a coherent way and three dimensions of effectiveness, pedagogic, inter-personal and student performance could be identified. The analysis has also shown that teachers were generally realistic about their effectiveness with regard to examinations. There were moderately strong correlations between the self-rated effectiveness in examination performance and actual examination results at school level.

At the beginning of the paper, we considered some of the studies of teacher self-efficacy and the results here contribute to the perspective on teachers' sense of efficacy to emerge from these studies. In particular, the teachers in this study were able to think of themselves as effective professionals without necessarily thinking that they could have a substantial impact on student performance. Their sense of themselves as competent professionals, having both the skills and personal attributes of an effective teacher, was much stronger than their sense of being effective in producing student outcomes in a very important examination. This matches the distinction between different aspects of efficacy to emerge from the self-efficacy studies and extends these with the finding that the teachers in the present study have much stronger sense of their ability to perform the teacher role competently than they do in their ability to produce examination success. Of course, this study was in one specific context in a developing country. It would be valuable to investigate the extent to which teachers elsewhere may have a perception of professional effectiveness that does not necessarily encompass student performance.

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