What are the impacts and cost effectiveness of strategies to improve performance of untrained and under-trained teachers in the classroom in developing countries?

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1. Background

1.1 Aims and rationale for current review

The 1990 World Conference on Education for All, followed later by the promise of universal primary education in the Millennium Development Goals (MDG), promoted greater access to education in lower and middle income countries. However, this growth in turn occasioned greater attention to be paid to the quality of that education, as it became plain that such strategies as massive recruitment of untrained and less educated teachers so that vastly expanded demand could quickly be met, were leading to poorer learning and teaching outcomes. Hence governments, NGOs and donors have sought in recent years to intervene, through such means as in-service education, subject-specific training and curriculum reform programmes, to improve the performance of these teachers. A variety of approaches have been taken to the problem, in contexts as diverse as Brazil, Cambodia, Malawi and Namibia. The purpose of this review, then, is to identify what has been effective in these different settings and to draw lessons as to ‘what works’ for more general application. This review will look specifically at the strategies that have been used to improve performance in the classroom in this context; it will examine the evidence base for the success or failure of such strategies, and identify the factors that have been identified as contributing to these outcomes.

1.2 Definitional and conceptual issues

1.2.1 Untrained and Under-trained Teachers

Teachers’ lack of training may be one major reason for low quality of teaching and poor student outcomes. However, as well as the lack of specific pedagogical training, another reason advanced for poor teacher performance is the lack of adequate subject knowledge. This applies not only to contractual teachers and teachers recruited by the community, but also to teachers trained under previous systems where entrants had only completed primary school. Thus, alongside untrained and undertrained teachers are less educated teachers whose own lack of schooling may lead to a poor grasp of the concepts they need to teach. Despite these distinctions, research on the performance of untrained and less educated teachers as compared with those with the requisite training and education is not conclusive (Mulkeen 2010). It may therefore be justified to apply the terms ‘undertrained’ or ‘less educated’ to teachers who are accredited but have failed to
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benefit from education or training, possibly because of the poor quality of institutional instruction, because of the inappropriateness of the teacher education curriculum or because of changes in school curriculum, class sizes and pupil backgrounds.

This gives rise to the following typology of the terms that may be applied in different contexts to teachers who are the subject of efforts to improve the quality of schooling and are therefore relevant to this review question:

**Table 1: Typology of Targeted Teachers**

<table>
<thead>
<tr>
<th>Type</th>
<th>Educated</th>
<th>Less educated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trained</td>
<td>1. (ET) Teachers who have at least the requisite minimum basic education and the requisite formal training or more.</td>
<td>2. (TL) Teachers who have a formal initial training but whose general education is below current minimum requirement.</td>
</tr>
<tr>
<td>Undertrained</td>
<td>3. (EU) Teachers who have at least the requisite minimum basic education but whose formal training has been short.</td>
<td>4. (LU) Teachers who do not have the requisite minimum basic education and whose formal training has been short.</td>
</tr>
<tr>
<td>Not trained</td>
<td>5. (EN) Teachers who have at least the requisite minimum basic education but no formal training.</td>
<td>6. (LN) Teachers whose general education is below the required minimum and who have received no formal training.</td>
</tr>
</tbody>
</table>

(E=Educated; T=Trained; U=Undertrained; N=Not trained; L=Less educated)

1. (ET) Teachers who have at least the requisite minimum basic education and the requisite formal training or more.

2. (TL) Teachers who have a formal initial training but whose general education is below current minimum requirement. (For example in Pakistan current minimum requirement is 10 years of schooling for a one year teacher training course; there are many teachers in place who were accepted as trainees under previous requirements for as little as 6 years schooling for a one year course).

3. (EU) Teachers who have the requisite minimum basic education but whose formal training has been short (for example contractual teachers in Mali follow a 90 day course of training compared to colleagues who receive a full 4 year residential training). ‘Short’ in this context refers to the reduced training period offered to contract teachers rather than the lengthier training offered to standard civil servant teachers. For the purposes of this review, training lasting less than six months in total will be considered to fall into this category.

4. (LU) Teachers who do not have the requisite minimum basic education and whose formal training has been short. (For example, in Malawi people were accepted for short training courses with only primary education).
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5. (EN) Teachers who have the requisite minimum general education but no formal training. (For example parateachers in India have slightly higher general educational qualifications than fully trained teachers (Kingdon and Sipahimalani-Rao 2010)).

6. (LN) Teachers whose general education is below the required minimum and who have received no formal training.

1.2.2 Interventions

Interventions initiated by national, international, state and non-state actors seek to address the needs of different groups of untrained, under-trained, and less educated teachers and are not always directed at only one teacher category. We identify the following types of programme:

General in-service education of teachers (InSET) or continuing professional development (CPD) programmes to improve the quality of teachers generally, often state-run from teacher centres or colleges, or school based (e.g. Communautés d’apprentissage, Mali; ‘lesson study’ following the Japanese model, China, Indonesia);

Specific subject-based programmes with pedagogic content, often organized and/or provided by NGOs or development partners with a particular curricular aim (e.g. Project to Improve Mathematics Teaching, Honduras; Literacy Booster Toolkit, Malawi, Mozambique, Nepal, Save the Children);

Subject knowledge programmes without specific pedagogic content and often focusing on ICT (e.g. several programmes available through SchoolNet, South Africa);

Curriculum reform programmes aimed at initiating the whole teaching workforce into new arrangements and systems of provision (e.g. TIMDC/PEP-ILE, Pakistan);

Programmes providing (initial) training for untrained or under-trained teachers who remain in post (e.g. Teacher Upgrading Project, Lao PDR).

All of these approaches come within the scope of this review and, if identified in the literature, will be included within it.

1.2.3 Teacher Performance

Like the variety of strategies that may be employed to improve teacher performance, ‘classroom performance’ itself is a wide category and may take different forms, from systematic use of specific pedagogies whose efficacy might be assessed through assessment of student attainment, to strategies to increase motivation enabling better attendance and greater students’ time on-task (Bennell & Akyeampong 2007). It is envisaged that interventions may impact on teacher performance by affecting teachers’ knowledge, practice, motivation or satisfaction, or by removing material constraints on their ability to do their job effectively (e.g., provision of suitable accommodation near schools to reduce teacher absenteeism). These outcomes may be measured in the literature through assessment of declarative knowledge (testing teachers on their learning from the intervention), observing changes in teachers’ use of resources or specific
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pedagogical practices, obtaining feedback from teachers through surveys or interviews to indicate changes or increases in their declared motivation or job satisfaction, staying in post or promotion, or obtaining reports on teachers’ attendance and punctuality from headteachers.

Furthermore, teacher performance may be assessed through indirect outputs in two ways, one or both of which may be covered in a given study. The first is through its effects on pupils, which may manifest through changes in their knowledge (changes in attainment level), levels of participation and engagement in lessons, reported satisfaction, increased attendance and retention from year to year and a drop in repetition rates. The second is through its effects on other stakeholders, such as head teachers or parents, and here is likely to be largely limited to reported satisfaction. All of these will be taken into consideration to answer the review question.

This schema is represented diagramatically below:

Of course, outcomes may be conceptualised or discussed in the research literature in ways that differ from this. This will be captured at the mapping stage and will inform the further development of the in-depth review.
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It is also important to recognise that interventions may not only have positive outcomes leading to improved performance on any or all of these indicators, but also may result in no change or negative outcomes.

Studies of strategies and/or performance are of interest only if they concern untrained, under-trained, and/or less educated teachers, either as the only group under discussion or in conjunction with their more trained or qualified counterparts. It is recognised that some studies may not clearly state whether untrained, under-trained, and/or less educated teachers comprise a significant proportion of those dealt with; such references will not be included, as they do not allow any conclusions to be drawn specifically about this group.

1.2.4 Cost-effectiveness

Precisely because so little research is available that addresses issues of cost effectiveness, the review will need to be open to whatever ways this is presented. Quantified data on cost are especially difficult to come by, as within this field opportunity costs are often a major consideration, e.g., important salaried staff may be detailed to work on interventions which then precludes their involvement in other activities, though no additional salary costs are incurred by the sponsor. Moreover although all the studies reviewed will have taken place in low resourced situations, availability of funds will vary greatly and so what is expensive and what cheap is context-specific. Rather than being something fixed and quantifiable cost effectiveness, and with it the notion of what is worth doing, will emerge from the individual cases within the review based on what data are available and what claims are made about inputs and outcomes.

1.3 Policy and practice background

The 1990 World Conference on Education for All gave major impetus to education policies in lower and middle income countries aiming to maximise enrolment in primary schooling. However, the last twenty years have seen a gradual shift in emphasis from preoccupation with the quantity of children attending school to concern with the quality of schooling, and from an interest in primary education to focus on an extended basic cycle including lower secondary provision. Teachers and teacher training are central to aspirations for quality improvements in schools (Akyeampong 2003; Akyeampong and Lewin 2002; Kunje, Lewin and Stuart 2003; Little 2006), but in the rush to enrol as many pupils as possible, many teachers have been engaged with no formal training. Dissatisfaction with the cost and outcomes of teacher training has also acted as a rationale for very short or accelerated programmes such as has happened in Senegal since the early 1990s. In many schools such untrained, volunteer or contract teachers or para-teachers have joined other untrained or undertrained teachers, the largest group being those who were provided by local communities as an approach to cost sharing during the 1970s and 1980s or as part of policies of community involvement in education.

Against this background, there is an urgent need to understand better the processes and outcomes involved in the classroom performance of these kinds of teachers and to investigate the various ways in which such teachers get a belated
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Training or upgrading. With initial teacher education seen as expensive and not always effective, there has been a greater focus on CPD programmes that would enhance the practices of trained teachers but also scoop up untrained teachers (e.g. orientation to the new thematic curriculum in Uganda) or more cost-effective ways of screening entrants to teacher training by employing untrained teachers to teach alongside trained teachers prior to formal initial teacher education (e.g. Primary schools in Antigua). It is envisaged that in order to properly reflect this policy background, many of the studies will cover both trained teachers and those we have identified in the typology above.

1.4 Research background

Various large scale studies have compared the performance of untrained and undertrained teachers with those with a full qualification, for example in Africa the SACMEC and PASEC studies (Schwille and Dembélé 2007; Bernard et al. 2004). The results of the comparisons have been mixed, inconclusive and variable. A number of interventions have been carried out in low and middle income countries to improve performance of untrained and under-trained teachers, some of which have drawn on the findings of previous research projects to do so. These include the Proformaçao project in Brazil, the Malawi Integrated Inservice Teacher Education Programme (MIITEP) and the Teacher Upgrading Project, Lao PDR, for example. As far as we are aware, however, there has been no systematic review of these interventions to date, and so the evidence base remains scattered.

1.5 Authors, funders, and other users of the review

1.5.1 Authors

The principal investigators of the review are based at the Centre for International Education (CIE), part of the School of Education and Social Work at the University of Sussex. The CIE can draw on many years of advanced research and teaching in the field of international education development. Other team members are drawn from the University of Cape Coast, Ghana, and the University of Northumbria, and provide wider links and direct experience of the educational environment in Ghana and Pakistan. The review will be carried out by this team, with the help of the advisory e-user group. The EPPI-Centre, at the University of London, Institute of Education, will be responsible for quality assurance of the review and the final report.

The experience and expertise of the team are extensive and complementary. Pryor has longstanding experience of educational research in sub-Saharan Africa specialising in qualitative research. Westbrook is a teacher educator and researcher with expertise in reading and research experience in both sub-Saharan Africa and South Asia. Sebba has extensive experience educational research and is prominent in the field of systematic review. Orr is an anthropologist with South American experience and substantial expertise in systematic reviewing having worked on several reviews in the fields of education and social care. Durrani's doctorate investigated teacher education in Pakistan and she has published
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research on a number of different issues including teacher identity. Adu-Yeboah works at the main centre for teacher education research in Ghana and has taken part in international studies. Sabates is an expert in quantitative research and has worked widely in education in South America, Africa and Europe.

1.5.2 Funders

The study has been initiated by a consortium formed by the Australian Government’s Overseas Aid Program (AusAID), the Department for International Development (DFID) of the UK, and the International Initiative for Impact Evaluation (3ie).

1.5.3 Users

Potential users of the research will be ministries, teacher educators, NGOs, foundations and development partners. The Centre for International Education (CIE) at the University of Sussex has a range of links with government officials, international development organisations and international donor agencies, as well as practitioners working on the ground in education. In the first instance, all appropriate databases, repositories, organisations and ministries contacted will be provided with the means to access the review or with the review itself, subject to the agreement of the sponsors. Beyond this, a wider audience will be engaged via public lectures and dissemination in media, in particular the CIE website, newspapers and magazines, and other development oriented websites. Through the University of Sussex, CIE and our partner institutions, the project can generate its own website. We propose to develop an interactive web-based resource that will facilitate ongoing dialogue and reflection. Important communication with government officials and those who design and formulate policy is to be achieved via the CIE. Communication with academics will include the delivering of conference papers at the United Kingdom Forum for International Education and Training (UKFIET), British Association for International Comparative Research and the Comparative and International Education Society (CIES). It will also include articles in journals involving co-authorship across countries and including researchers at different stages of their careers.

1.6 Chapter 2 review questions

This review aims to explore the following research question:

What are the impacts and cost effectiveness of strategies to improve performance of untrained and under-trained teachers in the classroom in low and middle income countries?

This will be done through the following sub-questions:

How do untrained, under-trained and/or unqualified teachers perform in the classroom, and what factors affect their performance?

What forms of intervention have been used to attempt to improve the performance of these teachers?
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How have these interventions affected these teachers’ methods, skills and motivation, the performance of their pupils, and the satisfaction of parents, headteachers and other stakeholders?

What is the available evidence for the effectiveness and cost-effectiveness of such interventions, and what are the factors that may influence these in different settings?

The review will have a broad scope, considering interventions with untrained or under-trained schoolteachers from Latin American, Caribbean, African, Middle Eastern, Asian and Oceanian countries which qualify as low or middle income settings. Setting, contextual factors, barriers, facilitators and reported views of stakeholders will be taken into account in order to situate better these strategies and their range of applicability.
2. Methods used in the review

2.1 User involvement

Potential users of this review will be ministries, teacher educators, NGOs, foundations and other development partners. The direct involvement of users in the conduct of the review will be through the advisory e-user group, which may provide input at each stage of the review.

2.1.1 Approach and rationale

The e-user group was selected for their relevant academic and/or practice expertise, to provide a geographical spread of experience, and in order to represent the likely audience for the review findings. The group is composed of seven members, selected to reflect a range of stakeholders according to the following plan:

Two representatives with responsibility for educational policy development:
Mr. Attaullah Khan, Director, Directorate of Curriculum and Teacher Education (DCTE) Mandian, Abbottabad, Pakistan;
Mr Eric de Silva, former permanent secretary Ministry of Education, Sri Lanka.

Two representatives of international organizations making educational interventions:
Dr Cesar Guadalupe, Head of the Learning Outcomes Section, UNESCO Institute of Statistics;
Dr Amy Jo Dowd, Senior Advisor, Education Research, Save the Children.

One teacher educator:
Dr. Rukhsana Zia, Director, Centre for Learning and Teaching, FCC University, Lahore, Pakistan.

Two academic specialists in education issues in developing countries:
Mr Anthony Somerset, Visiting Research Fellow, Centre for International Education, University of Sussex, UK;
Dr Martial Dembélé, Associate Director, Centre Interuniversitaire de Développement International en Éducation, Université de Montréal, Canada.
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2.1.2 Methods used
It is anticipated that the main involvement of group members will be to comment on the draft protocol;
comment on the descriptive map and implications for priorities if appropriate, for in-depth reviewing;
comment on the draft report;
respond to ad hoc enquiries within their area of expertise as may be relevant.
This list is not intended to be exclusive, and all involvement of group members is welcomed by the team.

2.2 Identifying and describing studies

2.2.1 Defining relevant studies: Inclusion and exclusion criteria

Literature identified for the mapping stage will include empirical studies of all designs (both quantitative and qualitative), peer- and non-peer reviewed research papers, research syntheses, unpublished literature and theoretical papers (to inform the conceptual framework for the synthesis of findings). These will not be restricted to studies of interventions, but will include research into factors affecting the performance of unqualified and undertrained teachers in low- and middle-income countries, and identifying facilitators and barriers to their efficacy.

The following criteria (subject to approval by the e-user group) will be applied to title, year of publication and abstract of each reference to determine whether or not it is suitable for inclusion at the mapping stage:

must have been published after 1990;
must not consist of an entirely secondary source only (i.e., not a book review or textbook which adds nothing to the research it summarises);
must focus significantly on a low or middle income country setting or settings;
must focus significantly on pre-school, primary, secondary or senior school-level education;
must focus significantly on teachers who are untrained, undertrained and/or less educated (categories 2-6 in the typology presented above);
must focus significantly on a factor, or factors, affecting the classroom performance of those teachers.

Where there is insufficient information on which to base a judgement, full-text copy will be retrieved and these criteria will be applied to it.

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1 Here and thereafter in the exclusion criteria, a document is deemed to ‘focus significantly’ on a topic where it deals with it more than simply in passing. In practical terms, this generally means devoting more than two paragraphs within the document to discussion of the topic in question.
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The review team have the resources to include studies in English, French, Spanish and Arabic, and are able to access support where necessary in Mandarin and Portuguese. Should material in other languages be located, it is not planned to include it within the mapping stage, as this would likely mean considerable expenditure of resources that are not likely to have a proportionate impact on the central findings of the review. However, if such papers are identified and meet the criteria for data extraction, indicating that their focus bears centrally on questions of interest to the review, it is anticipated that they would be sent for translation and included in the in-depth review.

2.2.2 Identification of potential studies: Search strategy

Comprehensive searching of the literature will include electronic databases, handsearching, websites, citation tracking and personal contacts.

Electronic databases to include:
Association for the Development of Education in Africa (ADEA),
Australian Education Index (AEI),
Applied Social Sciences Index and Abstracts (ASSIA),
British Education Index (BEI),
British Library for Development Studies (BLDS),
EBSCO Library, Information Science & Technology Abstracts (LISTA),
Econlit,
Economic and Social Data Service (ESDS),
ELDIS,
ERIC,
Geography, Earth and Environmental Sciences (GEES),
IDEAS-REPEC,
Index to Theses,
Informaworld,
Ingentaconnect.com,
JSTOR,
Sabinet,
ScienceDirect,
SCOPUS,
3ie Impact Evaluation Database,
UNESCO,
Web of Science,
World Bank publications database.
Search strategies will vary in order to take best advantage of the features of each individual database and to avoid returning unmanageable numbers of 'hits' to be trawled, but all search strategies will be recorded and made available on the study website in the interests of transparency and replication. Strategies will focus on terms identifying unqualified and/or undertrained teachers, e.g.:

(teacher*) AND ((untrained) or (inexperience*) or(novice*) or(less educated) or(less qualified) or(poorly qualified) or(In-service) or(INSET) or(undertrained) or(undereducated) or(para-teacher)).

Free-text searches in title and abstract will be used, as well as, where helpful, descriptor terms specific to the individual databases. Terms may be added or subtracted to the search in each database according to the results obtained, in an iterative process that seeks to find a balance between sensitivity and specificity. In practice, this will mean that where a term brings back large numbers of 'hits,' but inspection of the first 100 reveals that it has added nothing relevant, it will be dropped from the strategy for that database. This is necessary so that resources can be focused primarily on relevant material.

Supplementary searching may be carried out on Google Scholar, which will make use of forward citation tracking.

Handsearching: Because databases may be poorly indexed, and indeed articles may discuss untrained, under-trained and/or unqualified teachers without making them the main focus of the paper, the content of seven prominent journals in the field of international educational development will be handsearched for relevant content that may have been missed by other searching methods. The choice of titles will be guided by the results of electronic database searching, so that handsearching complements this search. Handsearching will cover the period 2002-2011 to concentrate resources on the most up-to-date literature.

Citations: When relevant references are cited in the literature obtained, these will be followed up and included where they meet the inclusion criteria.

Websites: A number of websites maintained by educational government ministries, NGOs and charitable foundations will be searched for relevant reports. These will include:

http://www.vso.org.uk
http://www.actionaid.org.uk
http://www.oxfam.org.uk
http://reliefweb.int/
http://www.savethechildren.org
http://www.thecommonwealth.org
http://www.campaignforeducation.org/
http://www.gatesfoundation.org/
http://www.inclusion-international.org/
http://www.dfid.gov.uk/
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Key actors: Prominent researchers and policy-makers will be contacted through snowball sampling to identify unpublished and locally available research literature. Contact will be made with a number of education ministries in low and middle income countries to seek any unpublished studies carried out under their auspices.

EPPI-Reviewer software will be used to monitor the identified literature and track progress in obtaining these papers. Every effort will be made to obtain all relevant references; should any prove impossible to access in time to include their findings within the report, this will be explicitly stated in order to highlight that non-inclusion is due to availability issues rather than for any other reason.

All references found by the searches will be imported into EPPI-Reviewer. Duplicates will then be eliminated and the remaining references checked against exclusion criteria to determine which are to be included in the mapping stage.

2.2.3 Screening studies: Applying inclusion and exclusion criteria

Literature identified for the mapping stage will include empirical studies of all designs, peer- and non-peer reviewed research papers, research syntheses, unpublished literature and theoretical papers (to inform the conceptual framework for the synthesis of findings). These will not be restricted to studies of interventions, but will include research into factors affecting the performance of unqualified and undertrained teachers in low- and middle-income countries, and identifying facilitators and barriers to their efficacy.

The following criteria (subject to approval by the e-user group) will be applied to title, year of publication and abstract of each reference to determine whether or not it is suitable for inclusion at the mapping stage:

must have been published after 1990;

must contain some element of new findings, theory or synthesis of existing research (i.e., not a book review or textbook which adds nothing to the research it summarises);

must focus significantly on a low or middle income country setting or settings;

must focus significantly on pre-school, primary, secondary or senior school-level education;

must focus significantly on teachers who are untrained, undertrained and/or less educated (categories 2-6 in the typology presented above);

must focus significantly on a factor, or factors, affecting the classroom performance of those teachers.

Where there is insufficient information on which to base a judgement, full-text copy will be retrieved and these criteria will be applied to it.

2.2.4 Characterising included studies (if EPPI-Centre review: EPPI-Centre and review-specific keywording)

Studies will be coded in order to produce a broad 13arginalized13ion of the current state of the literature. The rationale behind this stage of the process is to identify
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the predominant geographical areas, methods and intervention strategies that have come in for research or discussion, even though the studies concerned may consist solely of theoretical analysis without any empirical element, or may not have been carried out or reported to a standard that meets the inclusion criteria for the synthesis. By doing so, the review conveys a fuller picture of the field, allowing the identification of particular gaps and showing where foundations exist that could be usefully built upon, without compromising the exacting methodological review that takes place in the later in-depth review stage. This is important because of the likelihood that methodological and reporting standards may vary widely in this field, particularly in the grey literature, and the undesirability of excluding such material from all consideration.

Mapping will involve coding each reference that meets the inclusion criteria under the following categories (subject to input from sponsor, peer reviewer and e-user group):

Region and Country of Focus (sub-Saharan Africa; North Africa & Middle East; Central Asia; South Asia; South-east & East Asia; Oceania; Central America; South America; Caribbean)

Research Type (Theoretical paper; Description; Exploration of Relationships; Evaluation: naturally occurring; Evaluation: researcher manipulated)

Types of Teachers Involved (Groups 2-6, according to the typology presented earlier; Other)

Phase of Teaching (e.g., Pre-School; Primary School; Junior Secondary School, Senior Secondary School)

Subject Specificity (General pedagogy; mathematics; reading; science; languages; other)

Specific Target Group (No specific target group; disadvantaged areas, rural schools, private schools, multigrade classes, not specified, other)

Intervention Strategy (General InSET or CPD; subject-based teaching programmes; subject knowledge programmes within specific curriculum; subject knowledge programmes without specific pedagogic content; curriculum reform programmes; upgrading training for unqualified or undertrained teachers who remain in post)

Intervention Method (Short workshop; longer single workshop; series of workshops; in-school support; distance study; directed tasks; resources; incentives; other)

Performance Outcomes (Change in assessment results; pupil attendance; use of resources associated with improved pupil performance; use of specific practice associated with improved pupil performance; inclusion of marginalised groups; stakeholder satisfaction; other)

Facilitators Identified as Influencing Competent Performance

Barriers Identified as Influencing Competent Performance

Number of Teachers Reached (1-50; 51-100; 101-500; 501-1000; 1001-5000; 5001-10,000; 10,000+; not specified; not applicable)

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Geographical Spread (School-Specific Strategy; Cluster Strategy, District Strategy, Regional Strategy; National Strategy; International Strategy; Other)

Is Cost-effectiveness Addressed? (Specifically addressed; mentioned but not addressed in detail; not mentioned; not applicable)

Suitability for Data Extraction within the In-Depth Review? (Yes; No)

In the final report, the mapping stage will be written up as a preliminary section to the in-depth review.

2.2.5 Identifying and describing studies: Quality assurance process

Application of the inclusion and exclusion criteria and the keywording will be conducted by two reviewers working independently and then comparing their decisions and coming to a consensus. Members of the EPPI-Centre will assist in applying criteria and keywording studies for a sample of studies.

2.3 In-depth review

2.3.1 Moving from broad characterisation (mapping) to in-depth review

In addition to the inclusion criteria applied to references for the mapping stage, studies must meet the following criteria to be included in the in-depth review:

must describe an intervention designed to improve the classroom performance of teachers (i.e., should not only describe some aspect of their performance without seeking to affect it through intervention);

must describe the intervention in enough detail that its component elements (e.g., workshops, in-school support, etc) can be identified;

must report on how data informing the evaluation of the intervention were gathered and on whether any attempt was made to guard against observation or anecdotal bias (e.g., where teachers or other stakeholders are quoted, it should be specified how these quotes were obtained; where classroom observations are reported, it should be specified how these were systematised);

must provide information on either the impact or cost-effectiveness of the intervention, or both. Impact here is broadly defined (see Section 1.2.3), and includes data gathered through both quantitative and qualitative methods, i.e., the review is interested in the ‘appropriateness’ as well as the ‘effectiveness’ of the interventions discussed. Likewise, cost-effectiveness will need to be defined broadly (see Section 1.2.4).

It is anticipated that between 20-40 papers or reports will be reviewed in depth; in the unlikely event that significantly more material than this is identified, the criteria for in-depth review will be modified to prioritise a smaller number, in discussion with the sponsor, e-user group and peer reviewers.

Grey literature, which may not have undergone peer-review, will be included in the in-depth review alongside peer-reviewed material, provided it meets the criteria just described. While there may be concerns over the quality of studies
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which have not undergone the peer-review process, the nature of the research question makes it quite possible that there may be relevant research carried out in countries and contexts where peer-reviewing of publications is not a priority and some studies are undertaken predominantly to inform policy development. In order to take full account of such literature, studies will not be excluded on these grounds. Such studies will of course be subjected to full quality assessment through the standard application of the quality assessment framework designed for this review.

2.3.2 Assessing quality of studies and weight of evidence for the review question

An adapted version of the data extraction tool developed by the EPPI-Centre will be used for data extraction of studies that are selected for in-depth review, recording funder, research question(s), design, ethical issues, user engagement, details of intervention or strategy, evidence of improvement or lack of improvement in teachers’ performance in the classroom, key findings, population, generalisability, and implications.

The tool will guide assessment of the quality of studies to enable the reviewers to judge the weight of evidence (WoE) according to the internal consistency of each study and whether the reported findings can be trusted in answering the study question (WoE A), and the fitness for purpose of the study’s design and form of evidence in answering the review question (WoE B). Although it is not yet known what range of methods may be employed across the studies which will be identified in searching and hence considered for inclusion in the in-depth review, it is not planned to privilege any particular methodology. Quantitative, qualitative and mixed methods research will therefore be included.

High, Medium or Low ratings will be assigned on both WoE categories. WoE A will be determined on the basis of the application of the data extraction tool, which requires judgements, grounded in evidence from the paper, to be made on whether or not the study is clearly reported, whether or not trustworthiness / reliability and validity of tools, methods and analysis have been addressed, and whether or not the authors’ conclusions are justified by the findings reported. Where all these points are addressed, a study will be rated High; where some of these points are addressed, a study will be rated Medium; and where only one or none of these points is addressed, a study will be rated Low. WoE B will be determined on the degree of contextual detail included in the study about the intervention, the educational setting, and the level and backgrounds of the teachers in the sample: where all of these are accounted for, a study will be rated High; where some of these are accounted for, or only partial detail is provided, a study will be rated Medium; and where only sketchy details are provided, a study will be rated Low. It is recognized that WoE B is a review-specific rating, and that studies carried out in a local context without thought for wider dissemination may be less concerned to address these details; if so, however, this limits the use that the review can make of them to draw wider conclusions.
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2.3.3 Synthesis of evidence

The data will be synthesised to bring together the studies which answer the review question and which meet the quality criteria relating to appropriateness and methodology. Summary tables of the studies included in the in-depth review will be presented alongside an empirical structured narrative bringing together their findings. Studies will be assessed as high, medium or low on each of rigour and relevance in order to determine the weight of evidence given to each study. Depending on the studies identified, it may be possible to report on cost effectiveness. It is unlikely that quantitative comparisons will be possible, or indeed meaningful unless contexts are similar.

2.3.4 In-depth review: Quality assurance process

All studies included in the in-depth review will be data extracted and quality assessed independently by two members of the research team. Inter-rater reliability will be checked within the team, and a proportion of the studies (15-20%) will also be checked by the quality assessor. Discrepancies will be resolved through discussion between themselves and, if necessary, with other team members and / or the quality assessor.

2.3.5 In-depth review: Deriving conclusions and implications

The evidence synthesis will provide the basis for reporting the key findings, conclusions and recommendations as to future policy and practice in this area. These recommendations will be clearly linked to the findings of the review.
3. References


Akyeampong K, Mensah D, Adu-Yeboah C (2010) Open and Distance Learning (ODL) Teacher Education to Support Teacher Development in Ghana - The Untrained Teachers Diploma in Basic Education: An Evaluation Report. Accra: Teacher Education Division, Ghana Education Service


APPENDIX 1

Authorship of this review

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What are the impacts and cost effectiveness of strategies to improve performance of untrained and under-trained teachers in the classroom in developing countries?

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Conflicts of interest

If conflicts of interest arise in the course of the review, this will most likely be as a result of work authored by members of the research team meeting the criteria for inclusion for in-depth analysis. For example, Pryor, Westbrook and Adu-Yeboah are currently working on a project investigating teaching education in six sub-Saharan African countries. No outputs of this research have yet been published but some will be completed during the time that the systematic review will take place. Although overall the project does not directly address the review question, in a large project such as this, there may be parts of the dataset and analysis that fit the criteria sufficiently for inclusion. Adu-Yeboah is also co-author of research on the Ghana Distance Education programme (Akyeampong, Mensah and Adu-Yeboah 2010), which again may meet criteria for inclusion within the review.

To address such potential conflicts of interest, inclusion criteria will be transparent and subject to approval by the e-user group and the commissioning bodies. Review team members will not be involved in screening any study which they have authored or with which they have been associated. If in any doubt, these studies will be screened and data extracted by reviewers outside the team. In each case the attention of peer reviewers will be drawn to this potential conflict.

The team are not aware of any other conflicts of interest liable to pose a problem for the review.