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Changes in teaching and learning: what counts, who to, and how is it counted?

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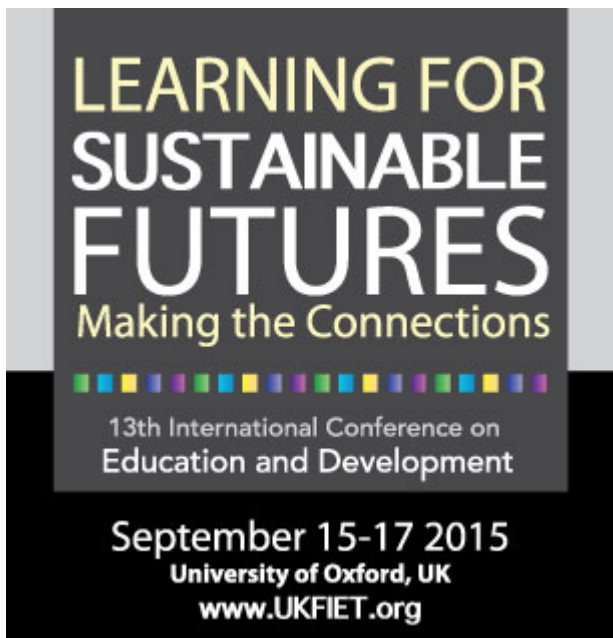
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Changes in teaching and learning: what counts, who to, and how is it counted?

1 ABSTRACT

This paper builds on and contributes to the evidence that links teacher development programmes and educational technology programmes in low-to-middle income countries, to improvements in quality. Recent reviews, funded by the UK Department for International Development (DFID) have examined the characteristics of teacher education programmes (Westbrook et al., 2013) and educational technology programmes (Tom Power, Gater, Grant, & Winters, 2014), that show evidence of impact on teaching practice or learning outcomes. In both cases evidential problems arise in relation to reporting change. Power & McCormick (2014) observe that where reviewed studies present outcomes, these are often based in an educational economist tradition; the teacher development theory of change is often disregarded (Tatto, 2013). This paper examines the research approaches and findings of a large-scale programme of teacher development incorporating Educational Technology in Bangladesh, that has tried to develop a more holistic or ecological understanding of educational change at the classroom level. We argue that whilst such research stands out as one of only a small number of studies that evidence change in teaching and learning holistically at large scale, further methodological development is required. How can such large-scale programmes meet the evidence requirements of donors and policy makers, typically framed in human capital terms, whilst giving voice to teachers and students, about the experience of change and the development of capabilities (Tikly & Barrett, 2011) they have reason to value?

2 INTRODUCTION

2.1 Context

In this paper, we first describe the context in which the teacher education programme titled English in Action (EIA hereafter) has been set up and then provide a brief overview of the project. Seminal reviews of teacher education programmes are presented next. These critiques observe that where programmes are concerned with outcomes, they are often within a human capital tradition and ignore the need to concretise the theory of action in actual situations. Although EIA needs to fulfil the evidence requirements of donors and policy makers, it addresses many of the issues raised in the reviews. However we recognise the need to capture the trajectory of teacher education programmes through the lens of teachers and students, the main stakeholders of the programme. We argue that we need to capture teachers' and students' voices that give us a peek into how they experience educational change and what capabilities they develop in the process. The paper suggests a way to capture and document the nuances of teacher and student learning in their own words that might be of relevance to other teacher education contexts.

Bangladesh is one of the most densely populated countries in the world, (UNPD, 2007), with a largely monolingual population: 95% of the population speak Bengali (or Bangla) as their mother tongue (BANBEIS, 2003). In 1974 the Bangladesh Education Commission mandated Bangla as the only language to be taught in primary schools. English was not introduced as a compulsory subject until 1990 (Hoque, 2009). For many years, English language was the most commonly failed school subject in national exams in Bangladesh (Kraft, Ehsan, & Khanam, 2009).

Baseline studies showed classroom practice dominated by teacher talk, usually represented by closed-questions to which students gave 'safe' responses, individually or in chorus. In most English lessons observed, the majority of teacher and student talk was in Bangla; in 90% of lessons observed, there were very few opportunities for students to practice speaking or listening in English (English in Action (EIA), 2009b). Students' proficiency in spoken English showed little evidence of progression, despite increasing years of exposure to English language teaching.

"There is little evidence of progression of language through the Primary schools... There is also little evidence of systematic progression through Secondary schools. The results show no increase in English language ability that can be specifically tied to working through the school grades" (English in Action (EIA), 2009a).

English in Action (EIA), a £50M, 9-year (2008 to 2017) project, was designed to change the way that children, young people and adults in Bangladesh acquire English. EIA was initiated at the request of the Government of Bangladesh (GoB) and is funded by a grant from UKAid. EIA is managed by BMB Mott McDonald, in partnership with the Open University, BBC Media Action and local Non-Governmental Organisations (NGOs). In this paper we consider only the schools component of EIA, as a case study of a large-scale programme of teacher development. Details of the approach to teacher development in the project are provided below.

2.2 Review of the Literature

It is now a little over a decade since two of the classic reviews of education in developing countries (Boissiere, 2004; Verspoor, 2005). Boissiere was amongst early calls to move attention beyond

issues of access to issues of quality (p7) and sought to identify the determinants of quality outcomes in primary education, in terms of completion, literacy and numeracy. A key finding was that in many developing countries, the provision of textbooks or other learning materials had the highest impact for improving primary school outcomes, though this was caveated with the caution that those materials must be appropriate (not too difficult to understand and relevant to context) and teachers must be trained in conjunction with the introduction of learning materials (p34). Verspoor (2005) focussed instead upon the *conditions* that guide or underpin effective action to improve quality (p346). Although these conditions are framed at the level of national education systems, when addressing the question of 'where to start', Verspoor immediately focuses upon the school level, arguing the case studies show that empowering school communities and teachers to develop a sense of ownership over the quality improvement process (p348) and acknowledging the central role of the teacher as the agent of change should be the first priorities. The evidence presented by Verspoor suggests effective teacher development programmes, accompanied by provision of instructional materials and a supportive school environment are critical aspects of any attempt to improve quality.

"...quality improvement will not succeed when teachers do not have the means or skills to apply successful instructional methods' (Verspoor 2005, p349).

However, subsequent reviews of teacher education from both the developed and developing worlds provide only partial insights into *what forms of teacher development* are most effective in equipping teachers with 'the means to apply successful instructional methods', particularly in low-to-middle income countries.

Avalos (2011) reviews over a hundred articles on teacher professional development from 2000 – 2010 in the journal *Teaching and Teacher Education*; emerging themes include the specific needs of beginning teachers; the role of reflection in professional learning, and the use of tools (particularly new technologies) as learning instruments for teachers and students alike. The review charts a 'vivid shift' from traditional forms of In Service Training (INSET) and the 'master' teacher educator role, towards teacher co-learning and partnerships with others within and beyond school (p17-18). In trying to identify which forms of professional development were effective, Avalos observed: '*...it was clear from the successful experiences narrated, that prolonged interventions are more effective than shorter ones, and that combinations of tools for learning and reflective experiences serve the purpose in a better way*' (p17). However, only one of the studies reviewed was from a developing country. Power et al (2014) also identified a number of studies from low-to-middle income countries, where new tools and technologies supported teachers in improving classroom practice or learning outcomes, within appropriate professional development contexts.

A DFID funded review focussed on evidence emerging from low-to-middle income countries (Westbrook et al., 2013), revealing the following about how teacher education can support effective pedagogy:

- professional development aligned with teachers' needs, applied in context with follow-up support;
- teacher peer-support;
- support from the head teacher;
- appropriate curriculum in terms of level, accessibility and amount of content, and assessment aligned with content.

There were a number of gaps identified in the research:

“...with few exceptions ...investigation of the effectiveness of training did not take a holistic view of pedagogy, that is measuring in a single study changes in teachers’ attitudes and beliefs, their knowledge...and their practices. Even here, students learning outcomes as a result of ITE or CPD were often not obtained for reasons of scale and feasibility (Westbrook et al. 2013 p.31).

This observation is echoed by Tatto (2013, p3), who found that examples of large-scale systematic-policy-orientated research on teacher education were few and mostly in the school effectiveness tradition of economists, that disregard teacher development programmes theory of change (or action) or use poor outcome indicators, such as accumulated years of education (Tatto, 2013 p3). Tikly & Barrett (2011) have critiqued such ‘human capital’ approaches to understanding educational quality and impact, calling for an alternative understanding framed around human capabilities, that is more inclusive, relevant and democratic.

In summary, the evidence shows the importance of teachers and teacher development to improving educational quality, but is less robust about what forms of teacher development work best, or under what circumstances. Emerging themes include a shift from ‘master trainers’ to ‘teacher co-learning’, support over longer periods of time and support by those in the school community, especially peers, head teachers and school management committees. There is some evidence, mostly from developed economies, that ‘reflection’ and the use of tools or technologies may be effective. But there are three critical issues with the evidence base:

- a) There is a dearth of evidence arising from large-scale studies in development contexts
- b) Where there are such studies, they are often not ‘holistic’, or lack an appropriate theory of change (or action), so there is limited explanatory power
- c) There is relatively little known about the changes in educational processes or outcomes that participant individuals or communities have reason to value; their voice is not heard in studies framed in the discourse of human capital.

3. CASE STUDY: LARGE SCALE ENGLISH LANGUAGE TEACHER DEVELOPMENT USING MOBILE TECHNOLOGY IN BANGLADESH

3.1 The EIA approach to teacher development

EIA has developed an innovative approach to large-scale school-based teacher development using mobile technology and local peer support, as an alternative to cascade or centre based teacher-training approaches. The EIA approach (Power, Shaheen, Solly, Woodward, & Burton, 2012) is well aligned with the emerging evidence on effective teacher development outlined above, placing emphasis on creating opportunities for teacher co-learning, using new tools and classroom resources, within supportive environments in school and beyond, over a sustained period of time. At the heart of the EIA model, teachers try out new classroom activities with their students; but before and after doing this, they talk about their understandings of what works, how, why and in what circumstances, with other teachers.

EIA is one of the relatively few programmes providing large-scale studies of teacher development, in low-to-middle income country contexts, that provide a holistic account of teacher and student attitudes, classroom practices and student learning outcomes (Westbrook et al, 2013). But

although efforts have been made to understand processes and outcomes from participants' perspectives, more could be done to make their voices heard, potentially enabling a much richer understanding of the processes, outcomes and contexts of effective teacher development, from participant perspectives.

3.2 Research framework and findings to date

Large Scale Studies

Westbrook et al. (2013) consider teachers' and students' perceptions, classroom practice, and students' learning outcomes as crucial elements of a holistic teacher education programme. To measure the impact of the programme EIA carried out three large-scale quantitative studies focusing on Teachers' and students' perceptions, classroom practices, and students' learning outcomes. The primary purpose of these studies was to address the evidence needs of the programme and donors, as manifest in the project log-frame. As such, they might be seen as situated within a human capital framework.

1. Teachers' and students' perception:

The Perception study explores what teachers and students perceive of Communicative Language Teaching (CLT), their experiences in English lessons, English in general, and of EIA intervention. Data is collected using self-administered structured questionnaire for teachers and secondary students; structured survey interview for primary students. The participants of the recent study (EIA 2014a) were primary teachers (269), primary Head Teachers (123), secondary teachers (143), primary students (376) and secondary student (457). Teachers report that they felt they had improved their English Language Competence (96-99% of teachers agreed) and their confidence to use English language (88-89% agreed). Most teachers (63-66%) strongly agreed that the programme had impacted their teaching practice, and almost all (89%) agreed they now focus on student communication and interaction in their lessons. Most students (79-80%) report having more opportunity to speak in the target language in English lessons. However, there remains a strong residual attachment to traditional practices: for example, primary students report enjoying learning grammar rules (95%). English in Action (2014a).

2. Classroom practice:

The major focus of the Classroom Practice study is to identify to what extent teachers and students talk in the classroom and their use of the target language. Besides, the study explores the techniques used in the lessons e.g. group work and paper work. The data was collected using Timed Observation Schedule, with simultaneous sampling at one minute intervals, recording objective features of classroom behaviour. For the recent study (EIA 2014) the data was gathered from 401 class observations (230 primary, 26 primary Head Teachers and 145 secondary). From the data it is identified that teachers talked less (45-48%) but used target language more (76-87%). Student talktime increased substantially (to 27% primary; 24% secondary). Student talk in target language increased substantially (to 91% primary; 87% secondary). There were also substantial increases in observations of student talk in pairs or groups (18% primary; 28% secondary). However, despite these increases, primary student talk remained dominated by choral work (46%), and secondary student talk by individual talk (53%).

3. Student learning outcome:

The Students' Learning Outcome study investigated to what extent EIA was successful in elevating students' English language competence. Students' English language competence was measured on the scale of London Trinity College by the assessors of London Trinity College. The data was

collected through one to one interview. For the recent study (EIA 2015) of students' learning outcome data was collected from 532 teachers (246 primary, 286 secondary) and 884 students (463 primary and 421 secondary). The study showed that primary students showed large improvement over baseline (34% more Grade 1 or above; 20% more Grade 2 or above), with primary girls (74% pass) performing significantly better than boys (65% pass). Secondary students showed significant improvement over baseline (14% more Grade 2 and above, and 11% more Grade 1 and above).

Small Scale Studies

Along with the large-scale studies EIA also carried out several small-scale qualitative studies, that were designed to understand aspects of participants experience: the UCEP study and New Element Study. These might possibly be seen as moving towards a Human Capacity approach.

4. UCEP Study:

This study attempted to identify the link between English language skills and socio-economic opportunities. To identify the linkage a number of case studies was developed. To draw the connection between English language competence and economic benefit four broad themes were considered: the use of English language; the role of English in improving employment and earning; how English skills are perceived by others in the work place; and the perceived significance of English skills in future earnings or career development. The participants of the study were the school leavers at the Underprivileged Children's Education Programme schools. For the study, 14 individual cases were selected. Data was collected through telephone interview and face to face interviews using semi-structured questionnaires. All the cases reported that English is central to the regular requirements of the workplace, particularly for engaging with or creating texts central to the work role. They also mentioned that English is required in the professional trainings prior to joining a work and in writing CV. It was also identified that the high English language competence increases the chances of salary increase.

5. New Element Study:

The New Element study focuses on the aspects of the teacher development approach, which was adapted during the transition period from phase II to phase III. The study investigated the effectiveness of the use of new teacher development and classroom materials, new technologies, such as low cost mobile phones, new audio –visual materials uploaded in the SD cards, and low cost speakers, and school based teacher development. For the data collection semi-structured interviews and classroom observations were conducted. The participants were selected from 4 primary and secondary schools from 4 primary and secondary clusters in 2 divisions. It was clear that EIA materials and the techniques contained in them were being used and were generally embedded in the classes. With the teachers interviewed in this study there was great enthusiasm for the technology, a number seeing it as one of the most unique and helpful aspects of EIA that aided its impact and sustainability. The clearest evidence of the embedding of aspects of social inclusion in the observed classes and meetings was in the increased participatory nature of interactions when compared to classes observed before the EIA intervention.

In sum, EIA has conducted a large number of research studies and systematically documented evidence of change in teaching and learning that meet the requirements of donors and policy makers, probably within a human capital framework. Although there have been several attempts to look quite critically at how the different stakeholders experience the intervention (as described above), large scale programmes such as EIA would also need to throw more light on how the main

stakeholders, i.e. teachers and students, are actually involved in the innovation and more importantly what this involvement means to them. This is possible when we provide opportunities for learners to learn and for practitioners to develop their own capabilities and to articulate that learning within their own social, cultural and educational context. We will see in the next section what methodological developments may address this need.

3.3 Is further methodological development required?

Within a human capital framework, where improving the quality of education has been taken seriously at the policy level, the rationale for looking at quality has usually been in terms of increasing retention or outcomes (see, for example, Sarva Shiksha Abhiyan [3](#)) or the introduction of incentives and accountability mechanisms (see Muralidharan and Sundararaman 2006). Any increase in student scores is attributed to inputs in economic terms, for example, the costs incurred on training programmes rather than looking at how such programmes actually bring about change in teachers and students, what that change is and what it means to them. This orientation is apparent in project designs that require ‘hard data’ within a positivist framework. What is lacking in such a tradition is a concern for teacher professionalism and teacher agency.

Large scale development programmes have treated the education system as a ‘black box’, i.e. does not access the processes of teaching and learning that participants experience in their very personal ways. In fact, Tickly and Barrett (Ibid) argue that these undocumented internal processes often conceal marginalisation and exclusion issues of some groups of learners and teachers including girls and children with special needs.

A human rights perspective on the other hand is concerned with questions such as: Do teachers have adequate opportunities to confront (and contest) held beliefs and practices and to ‘experiment’ with new ideas in the classroom? Have they been enabled to articulate, reflect on and share with others what the experience of the project has been for them? Have we provided an opportunity for a bottom-up, grass root approach to more holistic and meaningful change? For this to happen, we will need to get them to ‘tell their story in their own words’. Asking the teacher to document and narrate their understanding of what the project has meant for them will not only help us to understand their perspective from the ‘inside’ but will give them a voice and ownership to their learning that will go a long way in sustaining the learning from the project. According to Tickly and Barrett (2011), the notion of educational quality is a political issue and what is of value to one (group) may not be to another and this needs to be debated and documented.

4. CREATING SPACES FOR TEACHERS VOICE AND UNDERSTANDING OF CAPABILITIES WITHIN THE RESEARCH EVIDENCE

Within a human rights discourse, the emphasis is also on supporting teacher professionalism, aside from addressing their salaries and status in society. If we agree that we need teachers who are reflective practitioners, who can make informed decisions, theorise from practice, exercise autonomy and are on a path of continuing professional development, we will need to facilitate teacher learning within a participatory and supportive environment (see Leu, 2004, Tatto 2013). This way we will be addressing Kooy’s (2014) complaint that while the notion of teacher at the centre of student learning appears beyond debate, teachers (and students) are often left out of the conversation; they remain “the most affected, and least consulted”.

Learning communities within and outside the school as demonstrated successfully in the Japanese Lesson Study experiment (Doig and Groves 2011) and other similar initiatives in other countries such as South Africa, Australia, Malaysia, Singapore and China (Ono and Ferreira 2010, White and Lim 2008, Yang 2009) need to be set up where teachers would be required to adopt a research-based approach to their teaching and a research stance to their work becomes the norm rather than the exception.

EIA provides for many such opportunities and structures within a school where teachers and Head teachers can together implement different aspects of 'EIA pedagogy' given the type of school and students and in the process develop their capabilities that best suit them and their school culture, that they will value. What is needed at this stage of the project is perhaps an insider view of how 'things unfold' as they

*See (the techniques in teacher development videos),
Practice (the techniques from the videos through role play and rehearsal),
Plan (new teaching and learning activities using the techniques in lessons) and
DO new activities in lessons at school
Discuss with their peers what they did (as above).*

While every teacher makes their own decisions about what (aspects of EIA) to 'see, practice, plan, do and discuss', they may not do it consciously let alone take responsibility for their decisions. We will need to enable teachers to continually reflect on their practice and share their experience with other professionals. It is only when we provide the space and a chance for teachers to articulate their pedagogical understanding i.e. enable meta-learning, that teachers can appreciate their investment in the learning and boldly acknowledge it as their own. We need to lend legitimacy to 'teacher knowledge' that is created and developed from within. When teachers begin to share this learning with others it makes this 'knowledge' fluid, flexible and easily amenable, which is accessible to all the participants as opposed to an expert's top-down theoretical principles that they are asked to implement unquestioningly. Clearly this knowledge is of value to those who develop it and they will recycle it in meaningful ways in live contexts. This 'research-based' approach to teaching is sustainable and generative and is amenable to critique at every stage and shifts the focus from being implementers of 'good' practices to one of taking responsibility for their classroom-decision making.

This is not to say that they do not need external support or motivation. Clearly the role of a facilitator/expert/mentor is crucial and will involve creating a conducive environment and encouraging a questioning approach to everything a teacher does. The Japanese lesson study and other similar attempts provide ample evidence for such a teacher-led approach to teachers researching their own practice in school-based communities of teachers.

Other quite successful efforts at creating teachers-as-researchers include the CBSE-ELT Curriculum Implementation Study (1993-1997), a curriculum renewal project in India that aimed at creating communicative classrooms at the secondary level in schools affiliated to the Central Board of Secondary Education. As part of the implementation phase, teachers were enabled to observe their own and their colleagues' classes and discuss them together to see how they could make it more communicative. An international conference that gave them a platform to present their mini-research studies to academic 'experts' from around the world was noted for the exuberance, professional commitment and 'passion' as one expert put it, of the teachers in their discussion of

teaching-learning in their classrooms. On this occasion when teachers talked and others listened, the project 'celebrated the 'coming of age' of teachers' articulation of professional experiences' and resulted in a publication titled 'Teacher as Researcher', Volume 2 of the Conference Report (Mathew and Eapen 2000).

It seems therefore that in order to understand and bring about education quality, we need to set up more qualitative studies, in addition to large scale, quantitative ones, that give an opportunity to all stakeholders to narrate their stories of development in their own words. It is the process of reflection, narration and sharing with fellow professionals that allows the participants to develop their key capabilities, within a social justice framework (Tickly and Barrett 2009). Assumptions about hard data, reliability measures and the impressive figures and tables might have to change to make space for valid and authentic thick-descriptions, giving rise to interpretative ways of understanding teacher education programmes' 'theory of action' (Tatto 2013:3) within a phenomenological paradigm.

Now we have planned to have a teachers' voices conference that will provide a platform to all the stakeholders to share their experience of the EIA journey as they have travelled it. Teacher facilitators and other 'mentors' would facilitate the process of this classroom-based researching and documenting. These professional narratives will also be documented in the form of a publication that we hope will give a glimpse of the development of their capabilities. Such a publication will not only be available to a wider audience but will also lend legitimacy to teachers' investment into curriculum renewal. This record of how teachers grow professionally should motivate other teachers to traverse similar but different paths and be of interest to others in the field. It would furthermore provide deep and rich insights into the process of change as it occurs in live contexts, to all of us, teacher educators.

5. CONCLUSION

In conclusion, we have attempted to design a research framework for English in Action that contributes evidence that is both robust and holistic, providing large-scale, quantitative data on changes in perception, classroom practice and learning outcomes, to meet donor and programme evaluation needs, as well as to contribute to the international evidence base on teacher education in international development contexts, but we seek to strengthen this by a richer understanding of the process and outcomes of change from participants perspectives. We believe that the process of making teacher learning and student learning the core of education will allow a reconceptualization of the notion of education quality, urgently needed as many seminal articles that review current large scale teacher education programmes indicate. Interestingly, involving the main stakeholders i.e. teachers and students and others involved in education in looking critically at their own work will create a learning community that is self-sustaining, generative and meaningful. This is also learning that the participants including teacher educators will have reason to value.

3 REFERENCES

- Avalos, B. (2011). Teacher Professional Development in Teaching and Teacher Education over ten years. *Teaching and Teacher Education*, 27, 10–20.
- Boissiere, M. (2004). *Determinants of Primary Education Outcomes in Developing Countries: Background Paper for the Evaluation of the World Bank's Support to Primary Education*. Washington DC: Operations Evaluation Department, World Bank.
- CBSE-ELT Curriculum Implementation Study (1993-97). Final Report, Central Institute of English and Foreign Languages, Hyderabad.
- Doig, B. and Groves, S. (2011). Japanese Lesson Study: Teacher Professional Development through Communities of Inquiry, *Mathematics Teacher Education and Development* 13/1, 77–93.
- English in Action. (2014). *Synthesis Report: Evidence of the Relationship between English and Economic Gain in Bangladesh*. Dhaka, Bangladesh: English in Action. Retrieved from <http://oro.open.ac.uk/41507/>
- English in Action (EIA). (2009a). *An assessment of spoken English competence among school students, teachers and adults in Bangladesh* (Baseline Study No. 1). Dhaka, Bangladesh. Retrieved from <http://www.eiabd.com/eia/index.php/baseline-reports?download=17:baseline-study-1>
- English in Action (EIA). (2009b). *Second Phase of Fieldwork: An Observation Study of English Lessons in Primary and Secondary Schools in Bangladesh* (Baseline Study No. 3). Dhaka, Bangladesh: English In Action. Retrieved from <http://www.eiabd.com/eia/index.php/baseline-reports?download=20:baseline-study-4>
- Kooy, M.(2014), Teachers Matter: Communities of Inquiry for Professional Learning and Development, *Christian Educators Journal* October. <http://www.cejonline.com/?issue=october-2014> accessed on 25 august 2015.

- Kraft, R. J., Ehsan, A., & Khanam, R. (2009). *Comprehensive Primary Teacher Education and Continuing Professional Development: A Framework for Reform. Draft Final Report*. Dhaka, Bangladesh: UNICEF.
- Leu, E. (2004). The patterns and purposes of school-based and cluster teacher professional development programs. Working Paper #2 under EQUIP1's Study of School-based Teacher Inservice Programs and Clustering of Schools, <http://www.equip123.net/docs/EQ1Clusterschool1.pdf>, accessed on 31 July 2015.
- Mathew, R. and Eapen, R.L. (2000). *The Language Curriculum: Dynamics of Change Volume II 'Teacher as Researcher'*. Hyderabad: Orient Longman Ltd.
- Muralidharan, K. and Sundararaman, V. (2011). Teacher Performance Pay: Experimental Evidence from India, *Journal of Political Economy* 119/1: 39-77.
- Ono, Y., & Ferreira, J. (2010). A case study of continuing teacher professional development through lesson study in South Africa. *South African Journal of Education*, 30(1), 59–74.
- Power, T., Gater, R., Grant, C., & Winters, N. (2014). *Educational Technology Topic Guide*. London, UK: Health and Education Advice and Resource Team (HEART), Department for International Development (DFID). Retrieved from <http://www.heart-resources.org/topic/educational-technology/>
- Power, T., & McCormick, R. (2014). EVALUATING CLASSROOM PRACTICE: A CRITICAL ANALYSIS OF APPROACHES TO EVALUATION IN LARGE SCALE TEACHER EDUCATION OR EDUCATION TECHNOLOGY PROGRAMMES, IN INTERNATIONAL DEVELOPMENT CONTEXTS. In *ICERI2014 Proceedings* (pp. 1269–1275). Seville, Spain: IATED.
- Power, T., Shaheen, R., Solly, M., Woodward, C., & Burton, S. (2012). English in Action: School Based Teacher Development in Bangladesh. *The Curriculum Journal*, 23(4), 503–529.

- Tatto, M. (2013). *The Role of Research in International Policy and Practice in Teacher Education*. (Research and Teacher Education: the BERA-RSA Inquiry). BERA. Retrieved from <http://www.bera.ac.uk/wp-content/uploads/2014/02/BERA-Paper-2-International-Policy-and-Practice-in-Teacher-Education.pdf>
- Tikly, L., & Barrett, A. (2011). Social justice, capabilities and the quality of education in low income countries. *International Journal of Educational Development*, (31), 3–14.
- Verspoor, M. Adriaan. (2005). *The Challenge of Learning: Improving the Quality of Basic Education in Sub-Saharan Africa*. Paris: Association for Development of Education in Africa.
- Westbrook, J., Durrani, N., Brown, R., Orr, D., Pryor, J., Boddy, J., & Salvi, F. (2013). *Pedagogy, curriculum, teaching practices and teacher education in developing countries: final report*. (Education Rigorous Literature Review). EPPI-Centre, Social Science Research Unit, Institute of Education, University of London. Retrieved from <https://eppi.ioe.ac.uk/cms/LinkClick.aspx?fileticket=E93CRI7ONwA%3D&tabid=3433>
- White, A. L., & Lim, C. S. (2008). Lesson study in Asia Pacific classrooms: Local responses to a global movement. *ZDM – The International Journal on Mathematics Education*, 40(6), 915–925.
- Yang, Y. (2009). How a Chinese teacher improved classroom teaching in Teaching Research Group: A case study on Pythagoras theorem teaching in Shanghai. *ZDM – The International Review on Mathematics Education*, 41(3), 279–296