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We're improving the quality of teaching": conceptualising 'quality' and 'change' using lessons from a current TESSA project

Abstract

Whilst 'change' in educational practices and 'quality' in teaching are often used in discourses as taken-for-granted terms in education and development, these are concepts differently constructed across cultural and national contexts. However, it is accepted that a focus on 'quality' is required. Student outcomes in Africa are poor and are seen as not contributing to human capability development as much as they could. This is despite many worthwhile and well-intentioned interventions from the international community, designed to promote a more learner-centred approach to education. This paper draws on experience from other disciplines and argues that the field of educational development would benefit from the clear articulation of a theory of implementation so that project designers better understand the processes through which new practices become routinely embedded in everyday life. We will argue that Normalisation Process Theory (NPT) could form the basis of such a theory. We will draw on experiences gathered during the Teacher Education in Sub Saharan Africa (TESSA) Teaching Lower Secondary Science project in order to explain the basic tenets of the theory. The theory identifies four generative mechanisms through which new practices become embedded; we will argue that one of these – cognitive participation – has been neglected and that understanding this mechanism in particular is crucial to the success of educational development projects.

Sub-theme Title: Values and Conceptualizations in Education and Development Research

UKFIET International Conference on Education and Development – Education & Development Post 2015: Reflecting, Reviewing, Re-visioning. Oxford, 10 – 12 September 2013

Making change happen in educational settings: lessons from experiences in Sub Saharan Africa

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Introduction

Whilst ‘change’ in educational practices and ‘quality’ in teaching are often used in discourses as taken-for-granted terms in education and development, these are concepts differently constructed across cultural and national contexts. What counts as evidence of ‘change’ and ‘quality’ can also be difficult to pin down. Engendering change in educational settings implies people adopting new behaviours and new practices, but change also implies longevity, sustainability, scale, and perhaps most importantly, pervasiveness - ‘the way we now do things here.’

It is widely accepted that in order to achieve deep and meaningful learning, learners need to have the opportunity to co-construct knowledge, (Dewey, 1900 and many others) so much of the effort around improving the quality of education in developing countries has focused on projects to support learner-centred education. These projects have attracted considerable resource from aid programmes and other donors. However, in a review of 72 articles published in the *International Journal of Educational Development*, Schweisfurth (2011), reports that ‘stories of unequivocal success in implementation are few and far between’ (p430). The implication is that improved quality remains elusive and change is not taking place as hoped. There are many reasons why projects might not work out as intended; one interpretation is that there must be some ‘barrier’ which needs to be surmounted in order to bring that change about. In her analysis of the situation, Schweisfurth identifies four such barriers, which include the nature of educational reform itself and the expectations that are placed on project leaders, a lack of resources, cultural issues and issues of power and agency. Among the articles reviewed, there are ‘calls for a more subtle approach both to Learner Centred Education (LCE) implementation and to the analysis of that implementation’ (p430). Some authors take a more analytical stance and ‘the concepts they generate are not only more realistic descriptively and prescriptively; they comprise new analytical tools for thinking about what we are trying to achieve in different contexts.’ Analytical tools can take various forms, but crucially they provide a vehicle for transferring learning from one situation to another. One reason for the lack of progress in the implementation of LCE could be that the transfer of learning is not taking place effectively as it could. Systematic discussion about, and the development of possible analytical frameworks seems to be missing from the field of educational development.

A programme of projects that was not part of the review carried out by Schweisfurth is Teacher Education in Sub Saharan Africa (TESSA). TESSA is a community of teachers and teacher educators, across 14 African countries, dedicated to the improvement of teaching. The initial project involved the production of 75 units of work (based on the Primary curriculum), published as Open Educational Resources (OERs) designed to support teacher learning and, crucially, to support teachers in the

adoption of learner-centred pedagogies. Other projects continue, extending and embedding the work of the consortium to new institutions, into Early Years and Secondary classrooms. A formative evaluation report (Harley et al., 2012) found evidence of considerable success. The report also highlights areas to work on, which will inform the work of the consortium in the future.

In this paper we suggest that more consideration needs to be given to the implementation of educational development projects and that there needs to be more discussion about the analytical tools that could be applied. Given the successes recorded so far, there is a case for starting that discussion with reference to the activities of the TESSA community. Indeed, within the TESSA programme of activities, meta-analysis of earlier projects has informed subsequent activity. It is not possible in the space available for a conference paper to provide a detailed discussion of a range of possible analytical tools or conceptual frameworks. The intention here is to introduce a theory of implementation which we think could be applicable to the context of educational development, and be used to explore the 'how' and 'why' of implementation.

Introducing Normalisation Process Theory (NPT)

Normalisation Process Theory was developed in the context of healthcare and is about understanding the processes through which new practices become (or fail to become) embedded in everyday life (May et al., 2009a); it is about how to achieve 'pervasiveness'. It was developed over a period of ten years (1998-2008). A set of empirical generalisations based on data collected in qualitative studies of healthcare work were analysed and through a process of extension and implication analysis built into a formal theory (May et al., 2009b). May argues that there will always be social factors that influence behaviours and that institutionalisation, stabilisation and implementation all depend on the things that people do. NPT explores the 'social production and organisation of what people do'. It 'provides a set of sociological tools to understand and explain the social processes that frame the implementation of material practices' (May et al., 2009a p540). The theory is operationalized through four generative mechanisms: coherence, cognitive participation, collective action and reflexive monitoring. It has been shown to be helpful in understanding complex interventions such as, for example, introducing new technologies and the systems that surround their use (May et al., 2009b). In a study investigating public dissatisfaction with speech and language services, James (2011) used NPT to analyse a successful intervention. The result was new insights which highlighted to importance of social processes in embedding new practices. Before explaining the tenets of the theory, we will briefly examine what is meant by a theory in social science and the potential benefits of working with a theory; we will consider the justification for extending the theory to the context of educational development and introduce the TESSA Teaching Lower Secondary Science project which will be used to explain the tenets of the theory.

Theory in Social Science

A theory in social science can be considered to be 'a coherent conceptual arrangement that, when operationalized, makes possible the rational description and taxonomy of phenomena and constructs, by which their systematic explanation is possible' (May et

al., 2009a, p539). It is not a set of rules or a claim to a particular truth, rather, it is a set of propositions about an empirical reality. NPT is sociological theory in that 'it takes as its focus the contribution of social action to implementation, embedding and integration' (May et al., 2009b, p5). It provides a set of sociological tools that can be used to analyse phenomena. NPT can also be considered to be what sociologists term a 'middle-range theory'. This means that it is sufficiently abstract to be applied to other social contexts, but does not offer generalisations at the level of society as a whole (Pawson, 2008). The generalisations are limited to the frame in which the theory was established. May et al. (2009b) claim that 'the limited scope and claims of middle-range theories are what make them practically workable in analysing practice' (p5). It is this emphasis on understanding and analysing practice – the things that people actually do in the context in which they are working – that appeals to us. In the healthcare context, interventions are often in the form of new systems; in educational development, the intervention is often in the form of some kind of resources. In fact, in both cases, in order to be successful the 'intervention' involves people changing their behaviour - changing the way they do things - whether it be prescribing drugs or teaching lessons.

Theories offer a number of advantages. They provide a generalizable framework within which to plan for implementation; they provide a process to inform the development, delivery and evaluation of interventions. A theory can help to understand why observed regularities occur and provide a way to allow for explanation of possible causal mechanisms.' (Eccles et al., 2006). Theories can be implicit or explicit. Often, change projects involve experienced people acting on instinct – they know what will work. The advantages of making the theory explicit are that less experienced people will learn more quickly, building capacity in organisations and, it has been claimed, are more likely to lead to extra insights and more learning (Eccles et al., 2006).

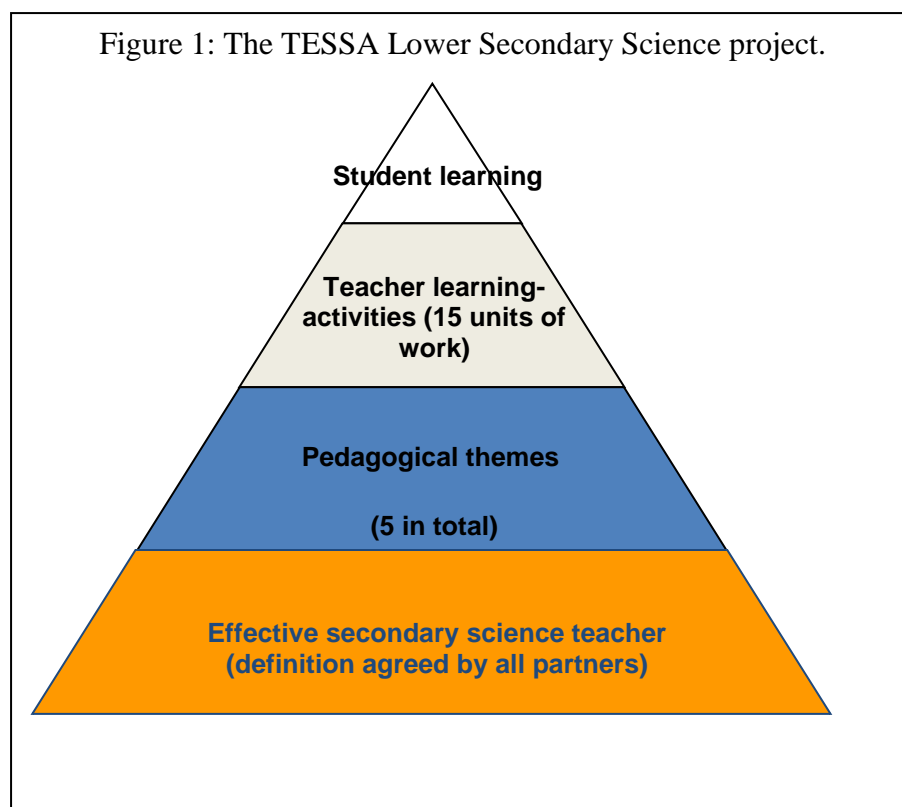
So what makes a good theory? Whetton (1989) suggests that it is one that provides a plausible and cogent explanation for the observed phenomena. It provides the 'what', 'how' and 'why', but is bounded by the 'who', 'where' and 'when'. By this means he means that it has to be relevant to the context in which you are working, as it applies to the particular phenomena you wish to describe. A good theory should explain the phenomena in a relatively straightforward and accessible manner; make accurate predictions of new phenomena and have the ability to be disproved.

In this paper, we are intending to demonstrate that NPT is worth testing in the field of educational development. The phenomena we seek to understand are the processes through which learner-centred practices become embedded in people's classrooms. We need to remember that theories are constructs, not statements about a reality, so we would not necessarily be seeking to disprove the theory, rather to modify it within this new context. NPT has been applied to the context of information systems by a group seeking to implement a new electronic calendar (Sooklal et al., 2010). They recognised that some information systems normalise (become embedded) and some don't and sought to understand the normalisation process so that they could ensure that the change they wanted to bring about was successful. They used NPT as a sense-making tool to understand the normalisation process. Their research supported the basic tenets of NPT and they suggest that this is because the project was concerned with the 'social organisation of bringing a practice into action'.

Establishing more learner-centred practices in schools, involves changing the behaviour of teachers and the evidence is that progress is slow (Schweisfurth, 2011) In a study of teachers' take-up of learner centred practices in a South African in-service programme, Brodie et al.(2002) highlight a crucial issue; they distinguish between the 'form' and the 'substance' of learner-centred teaching. In a study that lasted three years, they investigated the extent to which the teachers in the sample adopted strategies or 'forms' of learner-centred teaching, with or without the underlying principles, or 'substance', that underpinned the programme. They found that a significant number of teachers in the sample took up the 'form' without the 'substance' of learner-centred practices and highlight some of the reasons why this might be the case. We will argue that NPT could provide a framework to better understand this distinction and the processes through which learner-centred practices may, or may not, become embedded in everyday work. To do this we will explain the basic tenets of the theory and illustrate them in terms of an educational development project: TESSA Teaching Lower Secondary Science.

TESSA Lower Secondary Science

TESSA 'Teaching Lower Secondary Science' was funded by the Waterloo Foundation (2010-2012) and extends the 'TESSA approach' to secondary level in Higher Education Institutions in Ghana, Tanzania, Uganda, Zambia and Kenya. 15 units of work, aimed at pre-service and practicing teachers are already available in working versions on the TESSA website. The units are based on common topics in the Lower Secondary Science national curricula of the participating HEIs; they do not aim to cover the whole of the lower secondary science curriculum. Working together, the team of teacher educators drew up a definition of an effective secondary science teacher. Based on this they identified five pedagogical themes that underpin effective science teaching. Each theme is illustrated in three different contexts, (one from each of Physics, Chemistry and Biology) in a unit of work directed at the teacher. The thinking underpinning the project is illustrated in figure 1. The resources are in the form of Open Educational Resources (OERs) so the intention is that teachers will be able to adapt them for different scientific contexts. It is hoped that the process of adapting the units will help them to embrace the 'substance' of learner-centred teaching.



Research undertaken during the project, in the form of interviews, observations and analysis of the documentation from the workshops, was used to identify the particular challenges relevant to the secondary context and to inform the implementation stage. We will be drawing on this research to illustrate the tenets of NPT and argue that there is a case for further, detailed examination of this theory in the context of educational development. We are not in a position at this stage to make claims that TESSA Lower Secondary Science has been successful – that will take many years and more detailed investigations. However, the early signs are promising (DETA, 2013) and the collective work that was done in the early stages of the project to plan for implementation (Stutchbury, 2011) shaped the way in which the project proceeded.

The elements of NPT

NPT focuses on the work that individuals need to do to enable an intervention to become normalised into routine work (Murray et al., 2010). It does this by identifying four generative mechanisms through which the work of implementation is operationalized. A set of propositions define each mechanism, and all of these focus on the actions undertaken by the people enacting the changes.

Coherence

‘Coherence’ is about ensuring that the participants (or ‘actors’) establish a shared understanding of the new practice and are collectively committed to it. Everyone needs to understand what is to be done and why it is being done. What is done will be influenced by whether or not it is perceived to be sensible and meaningful, by the people involved. What is done is more likely to be successful if the people involved work together to develop a collective understanding of why it is being done.

Cognitive participation

‘Cognitive participation’ is about people working together and organising themselves to participate in the new practice. Embedding the change is dependent on identifying and organising key people. What they do will depend on them having certain skills and attributes, and these need to be explicitly developed. The key people need to be collectively committed to the change and they need to enact the changes they wish to bring about.

Collective action

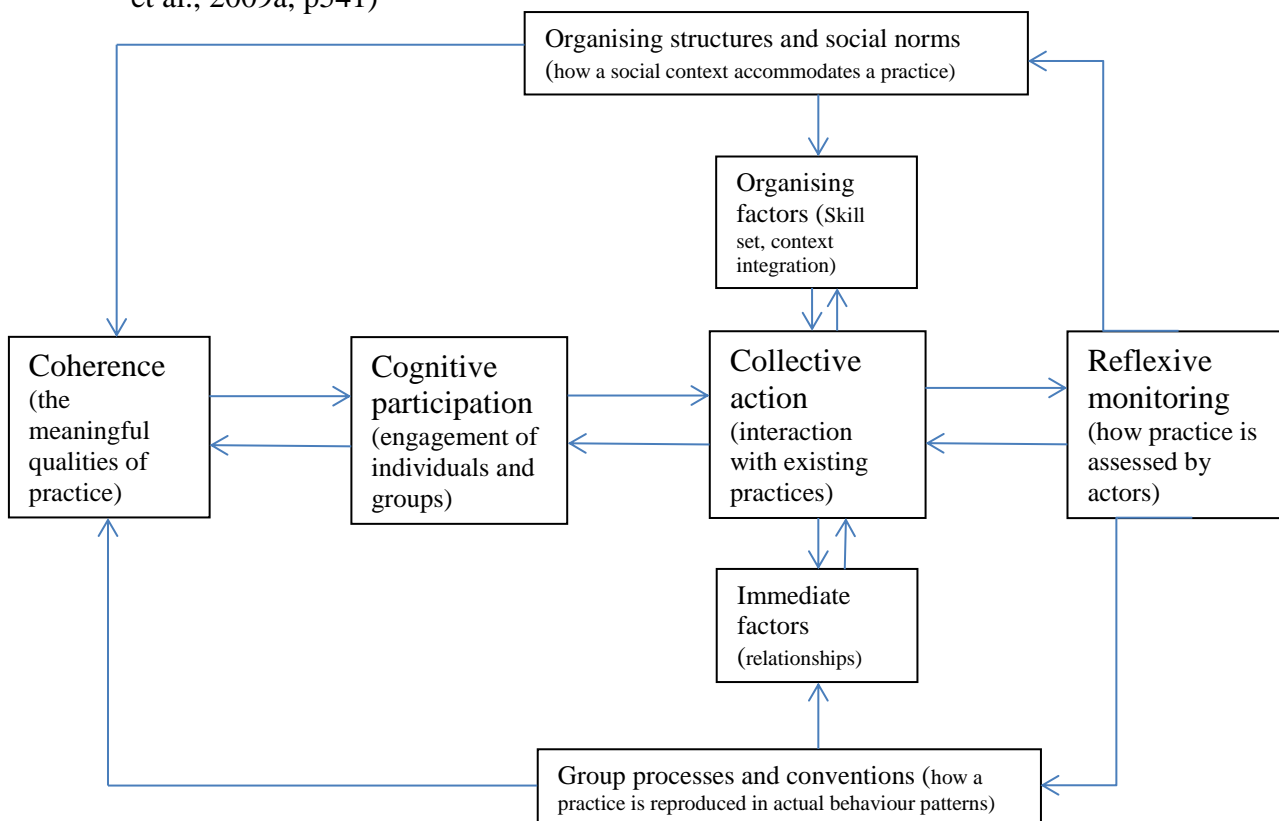
‘Collective action’ is about what people do to bring about change. What they do will be influenced by the extent to which they have internalised the changes and the extent to which they are prepared to collectively and individually invest effort in the change.

Reflexive monitoring

‘Reflexive monitoring involves making judgements about the utility and effectiveness of the new practice. People need to know and recognise when they are doing something different, and to assess the impact of what they are doing.

The relationship between the generative mechanisms is summarised in figure 2.

Figure 2: Model of the components of normalisation process theory (taken from May et al., 2009a, p541)



We would argue that a shared understanding of what TESSA Teaching Lower Secondary Science was trying to achieve ('coherence') was established at the first workshop. In particular:

- Participants undertook an analysis of the TESSA primary OERs in order to understand the concept of educative materials in which the focus was on the teacher and not the student. This was to ensure that everyone understood the TESSA approach.
- Participants worked together to produce a collective vision of 'an effective secondary science teacher'. This vision was used to generate a set of five pedagogical themes that would form the framework for the resources.
- Participants split into two groups to observe lessons in a secondary school in Dar Es Salaam. A detailed de-brief consolidated our collective understanding of the changes that we would like to see in secondary science classrooms.

These actions were not planned with the NPT framework in mind. The workshop was initially sketched out by the project coordinator and TESSA Director, who was able to draw on her implicit knowledge and understanding of what worked in the TESSA Primary project. As a result of reflecting the project in terms of NPT, the 'knowledge' of how to plan a project, has become explicit and a productive discussion could take place about alternative strategies.

'Cognitive participation' is more difficult to define and is the area in which we believe, NPT has the ability to support effective implementation in educational development projects. The 'collective action' that we were aiming for was the use of TESSA Teaching Lower Secondary Science materials by teacher educators, student teachers and teachers in science classrooms. In the second workshop, the project coordinator asked one of the participants what they would do about the project when he returned to his institution. The reply was 'I will lecture them about the project'. It was at that point that we realised that more needed to be done to ensure that the key people (the representatives from each participating institution) had internalised the full implications of the project and have the skills necessary to influence their colleagues within their institutions. We cannot claim to have achieved 'cognitive participation', but have taken a number of steps to try to do so. What we are clear about, however, is that it is 'cognitive participation' that will be crucial to the sustainability of the project. This will be discussed in more detail in the final section.

- Each participant in the project was interviewed during the second workshop. Semi-structured interviews, based on a framework developed from the concept of 'backward mapping' (Elmore, 1979). The aim was to determine the motivations of the participating teacher educators and their relationship with colleagues, teachers, schools and the institution in which they worked. The original aim was to understand the particular challenges and to make a plan for implementation as suggested by Dyer (1999). But during this process we also came to understand the extent to which colleagues really understood (or not) the 'how' of learner-centred teaching.
- At the implementation workshop in Ghana in 2012, participants took part in TESSA Lower Secondary Science activities. The project coordinator and others modelled the approach with the other participants in the role of students. The group then discussed suitable activities for them to undertake with colleagues in their institutions. The focus of the discussion was what they

would **do** in their classrooms, rather than at a more general level of how to integrate the resources into their programmes.

- Each institution was provided with a small amount of resource to run their own versioning workshop – to make changes to the resources that would make them more relevant for their own national context. The process of versioning has proved to be extremely powerful across the TESSA community as a way of establishing communities of practice within institutions and achieving ‘buy in’ to the project.
- At versioning workshops in Tanzania and Uganda, the project co-ordinator modelled TESSA Lower Secondary Science activities. When one young teacher educator in Uganda was asked what he would do next week with his student teachers, his response was that he would take them out into the University grounds where there was a large pond. After 10 minutes or so identifying the creatures living in the pond, they would together construct a food web for the pond. This was evidence of ‘cognitive participation’.

‘Collective action’ is difficult to achieve across international boundaries. However, during this year, via email, participants have shared with each other details of the activities that they have been engaged in in their institutions. Representatives from three of the countries involved had papers accepted at the DETA conference (Nairobi, 2013) and gave presentations about their work. The TESSA newsletter and TESSA community provide a mechanism through which experiences can be shared.

‘Reflexive monitoring’ is taking place within individual institutions. The annual gathering of the TESSA community provides an opportunity for participants to explain their work and to reflect on progress, away from their institution. In many cases the changes to conventional methods advocated through the TESSA materials are small and not particularly dramatic (for example, creating relevant wall displays from student’s work or old magazines, or asking questions to individual students rather than expecting the class to chant the answer). There is a danger that student teachers and teachers will not realise quite how much progress they are making; recognising that they are doing something different, from how they were taught or from how they usually teach, is important in sustaining change.

Discussion

NPT provides an organised framework for thinking about implementation. When we started work on TESSA teaching Lower Secondary Science, we saw the project as consisting of three distinct stages: planning and the production of resources; the integration of the resources into teacher education programmes, and the evaluation of their use. As a result of the initial research in order to help us plan for implementation, we came to understand that a vital step was missing. That step was ‘cognitive participation’. Our colleagues were all senior academics with a good knowledge of the theory of teaching, and constructivism in particular. However, very few of them had a significant amount of school teaching experience, and we realised that enacting the practices in their teaching would not happen automatically. Hence, the focus of the implementation workshop changed from asking how they would integrate the resources into their programmes, to what were they going to **do** in their classrooms? The evidence from the TESSA project is that if teacher educators start to **do** things

differently themselves, then they start to see themselves and their role differently and the integration of the materials into programmes is more likely to follow (Murphy and Wolfenden, 2013).

‘Cognitive participation’ is a powerful concept, linked to ‘identity’, how the participants see themselves and how they see their role within their institution. What cognitive participation means in practice will be context dependent. Schweisfurth’s (2011) review highlights the fact that LCE itself is contested, and what is considered to be ‘quality’ in classrooms will vary according to the context. We would suggest that what constitutes ‘cognitive participation’ is something that could helpfully be defined by a project team early in a project. How cognitive participation is defined will affect what the project team do and how they run the project. The evidence from other fields, is that a project is more likely to be successful if there is a focus on ensuring that participants collectively and actively invest commitment in the new practices. One of the things it could mean in the context of the TESSA community, is ensuring that the teacher educators undertake LCE themselves, and don’t just talk about it. This involves a group investment in developing the necessary skills.

Conclusion

We believe that there is sufficient evidence to suggest that NPT could provide a framework for the planning of future activity within the TESSA community, and maybe in the field of educational development as a whole. Further research is needed, based on observational methodologies perhaps, which focus on what people do in particular situations.

‘the propositions within NPT can be applied to non-medical interventions within health such as the interventions of the allied health professions. It could be used to help designers of intervention research, who themselves are not specialists in social theory, to explore the dynamic social processes that are associated with embedding research innovations in practice.’ (James, 2011, p9).

We believe that the same applies to teachers and teacher educators, and that NPT provides an opportunity for practitioners to make sure that their work is underpinned by a sound theoretical framework that is both accessible and relevant.

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