2016

The Prevailing Practices and Challenges of Curriculum Reform in Ethiopian Higher Education: Views and Responses from Within

Tefera Tadesse
Jimma University, tefera.tadesse@ju.edu.et

Wudu Melese
Jimma University, wudumelese@gmail.com

The Prevailing Practices and Challenges of Curriculum Reform in Ethiopian Higher Education: Views and Responses from Within

Tefera Tadesse
Wudu Melese
Jimma University, Ethiopia

Abstract: In reflecting on the recent educational change in Ethiopian higher education (HE), this article explores the nature of undergraduate curriculum reform in relation to student-centered pedagogy and continuous assessment method. To this end, the article uses a qualitative case study design collecting primary data from interviews with 4 senior managers and 4 education quality experts, and a focus-group with 6 teachers, and exploring secondary sources. The result shows that the forces, triggering curriculum reform are mostly external providing little room for internal factors and the development of curriculum from within the institution. The prevailing reform applied a government's controlled, centralized, and a one-size-fits-all model. As study participants reported, the most challenging issues are implementation gaps, particularly the absence of a functional enactment zone for teachers. This happens because conformity and uncertainty, as well as the rapidity of change, have created tension for academics when implementing the reforms in their classrooms. This article provides some suggestions as to how these challenges might be overcome.

Introduction

It has been widely argued that managing change in higher education (HE) is a diverse and complex issue as heterogeneous external and internal forces have profound influence (Gaoming, Yong, & Jing, 2012). These forces for change are evident in almost every sphere of institutional life, and the pace of change has gathered momentum (McRoy & Gibbs, 2009). This educational upheaval has created a new HE landscape, influencing universities to become a 'stadium generale,' sites attracting and gathering clients and personnel from a wide area (Hussey & Smith, 2010, p. 9). However, the range of challenges higher education institutions (HEIs) face today is almost unmatched when compared to the institutional mechanisms facilitating change and the capacities of those who are operating within the system (Engel & Tomkinson, 2006). Under these circumstances, managing change in HE is extremely challenging.

In the Ethiopian HE context, educational change have been problematic, with classroom practitioners often not implementing reforms disseminated by centralised government agencies (Tadesse, 2015; Tadesse & Gillies, 2015). Regardless of the government keen interest in reforming teaching and assessment, research reported that both teachers and their undergraduate students predominantly experience teaching in the form of transmitting knowledge and assessment as a recall of previously learned materials during exams (Zerihun, Beishuizen, & Van

Os, 2011). Their experiences and conceptions reflect a teacher-focused approach to teaching and learning. To cope with change and tackle some of the barriers to students' success (e.g., teachers continual use of teacher-centred approach to teaching, poor student teacher interaction, and a focus on summative assessment practices), strategies that build the capacity of individuals and institutions are even more necessary (Tadesse & Gillies, 2015), particularly in the developing world, where the contextual problems surrounding governance, resources and infrastructure intensify the problem (Chisholm & Leyendecker, 2008). The most important agenda for such efforts include engaging HE institutions into more innovative approaches to change (Engel & Tomkinson, 2006). For these to be realized, the curriculum has been regarded as an essential strategy because curriculum has considerable potential, both conceptually and practically for improving quality in HE (Shawn & Eunsook, 2011). However, effective curriculum change is difficult as it requires time and widespread participation (Burgess, 2004). While this is fundamental challenge in the HEI culture (Cohen, Fetters, & Fleischmann, 2005), current debates about quality teaching and learning in HE put little attention on the curriculum (Barnett & Coate, 2005; Hussey & Smith, 2010).

As with any change process, changing the curriculum is cumulative and ongoing, and over time, efforts to create opportunities for wider participation of different stakeholders to build a body of evidence to improve quality of programs (Burgess, 2004). The process is evolving and complex and usually requires the engagement of dedicated academic staff, needs based professional development, and planning time (Barnett, Parry, & Coate, 2001). Also, it requires a perfect plan, supportive institutional climate and leadership (Stark, Lowther, Sharp, & Arnold, 1997). Thus, the entire focus is more of treating curriculum reform within the context, and this will lead to the successful attainment of a desired curriculum change into practice (Cornbleth, 1988).

A common practice of curriculum reform in HE is the construction or revision of curriculum for new or existing programs. This change is very complex and has several activities and interactions. Understanding the complex nature of curriculum change, providing adequate time and creating opportunities for a wider participation of people in the process are very important (Letschert & Kessels, 2003).

Statement of the Problem

Over the last two decades, there has been a rapid expansion of the Ethiopian HE system reaching out to the broad strata of society. Growth has been explosive both in terms of the number of universities operating within the system and the number of students enrolled in the HE institutions. In Ethiopia, national policy initiatives providing motivation for institutional change in teaching and learning came to prominence in the 2000s through a proclamation on HE delivery and operation (FDRE, 2003, 2009). In the last decade, student populations in HE in Ethiopia have experienced significant diversity in terms of ethnicity, gender composition, study discipline, and academic performance (MOE, 2015). Seen from a different perspective, quality audit has been a key quality assurance strategy in Ethiopian public universities since the beginning in 2008 (Ashcroft & Rayner, 2012), yet there are no indications that the universities audited have implemented recommendations forwarded in audit reports (Adamu & Addamu, 2012).

The rapid increase in access to HE has been accompanied by parallel change initiatives including Business Processes Re-engineering (BPR), the establishment and use of quality assurance both at the national and institutional levels, successive curricular reform for the

undergraduate programs, promoting student-centred methods and continuous assessments, establishing academic development and resource centres (FDRE, 2003). Also, Balanced Score Card (BSC), which serves as a framework for measuring institutional performance was used (Kassahun, 2010). BSC is an innovative performance management system, which is used for monitoring the overall performance of the institution. Following those initiatives, the undergraduate curricula of different subjects have been renewed in ways that represent a modular approach for instruction and develop a range of competences for the graduates. Recent advancements have brought further developments in matters related to change through a compulsory adoption of a national curriculum framework and organizing course offerings in broader themes through a modular approach, and endorsement and use of continuous assessment and criteria-referenced grading (Education Strategy Center, 2012; FDRE, 2009). This renewal did not only brought changes in terms of the content, structure but also more extensive changes including learning and teaching processes and assessment methods. The new curricula emphasize the practice of undergraduate education based on student-centered learning or active learning method. This condition has located teachers in a position to adopt different teaching and assessment strategies unlike their previous practices.

The imperatives and issues that drove curricular changes arose from the need to respond to a diverse student population, deficiencies revealed in the previous curricula, for example, 'fragmentation of contents', which is the results of a traditional discipline-based approach to curriculum design (Tadesse, Mengistu, & Gorfu, 2016), and the legal framework mandating sound pedagogical and psychological principles, and meeting inter-national standard in curriculum design (Dinsa, Tollessa, Tadesse, & Ferede, 2014; FDRE, 2009), However, these initiatives have been found to be centrally driven with the main impetus arising from the central Federal MOE, higher education relevance and quality assurance (HERQA) and education strategic centre (ESC). Predominantly guided by these, there were whole-of-university changes, and curriculum changes at the micro level, which bear testimony to the existing realities of change within the sector.

While this expansion as well as reform initiatives are most wanted and needed, no research has focused on the reform process itself and its complexities, so not much is known about the reality of change in HE and how it is initiated and actualized within the sector. Over the years, many HEIs in Ethiopia are becoming more and more enlarged as they have increased their students' enrolments substantially (Akalu, 2014; Semela, 2011); yet, change strategies have not been exceedingly helpful in their capacity to guide institutions. Too often, dramatic failures of change tend to produce calls for more regulation, with little assessment of the underlying reasons for failure (Areaya, 2010; Assefa, 2008). Hence, based on participants' perception and using documents in relation to national HE guidelines and institutional policies, this study tries to explore broad patterns of curriculum reform in undergraduate programs, and discusses that against the backdrop of key hindering factors surrounding implementation.

Objectives of the Study

The general objective of this study is to explore the nature of curriculum change in Ethiopian HE and further identify key factors surrounding the implementation of curriculum change in classrooms. More specifically the objectives of this study include:

- Assessing the perceived reasons for initiating curriculum change in the HE system in Ethiopian.
- Investigating the way how a curriculum changes in the undergraduate programs in Ethiopian HE context.
- Highlighting those who did involve in the curriculum change process.
- Investigating key challenges facing academics in relation to the curriculum change process.

This article examines the phenomenon of curriculum reform in HE in Ethiopia. The first part of the article provides a context for understanding Ethiopia's reform initiatives from a historical perspective. It offers a brief analysis of the Ethiopian HE experiences and concerns with curriculum reforms in undergraduate programs. The article then presents the methodological apparatus and provides the analysis of themes, along with a discussion of the interpretation of the results. Finally, the article ends with a discussion of implications for curriculum review, increased stakeholders' involvement, and of the importance of teachers' interaction in curriculum reform in HE.

Conceptual Framework for the Study

The scope of change representing the realities in the Ethiopian context involves three levels, including policy, whole-of-university, and curriculum changes. Educational change at the policy level is the broadest, specifying key aspects guiding the entire education system. When it comes to whole-of-university change, this pertains broadly to the education programs across the concerned colleges and micro-level change deals with issues of curriculum and instruction. This conceptualization provides a theoretical overview of educational change that guides analysis in subsequent sections. Further, the notion of curriculum change is conceptualized based on Akker's (2003) classification that extends curriculum change into program, instruction, and learning experience levels. Also, this study differentiates between curriculum-as-designed and curriculum-in-action (Barnett & Coate, 2005, p. 3), with the intent of addressing issues of coherence at the conceptual and operational levels (Cornbleth, 1988; Schmidt & Prawat, 2006).

Methodology
Research Design

This study takes a deeper view of curriculum reform in undergraduate programs, adopting a case study design of two colleges on the practices and challenges of undergraduate curriculum reform in the Ethiopian HE. This case study was chosen since it helps to facilitate exploration of a phenomenon within its context using a variety of data sources. This ensures that the issue is not explored through one lens, but rather a variety of lenses which allows for multiple

facets of the phenomenon to be revealed and understood. Moreover, the issue of change in the Ethiopian HE is better understood by considering the context within which it occurred.

Participants of the Study

This study was conducted in two colleges of a large University in Ethiopia, including the College of Natural Sciences and the College of Social Sciences and Law, which consisted of 3 purposefully selected teachers (2 Men & 1 Woman) and 2 senior managers from each college. The participants of this study include: 4 senior managers and 6 (2 Women & 4 Men) academic staff members in the College of Natural Sciences and College of Social Sciences and Law, 2 educational quality experts at the University studied, and another 2 external education quality expert from the Federal MOE and HERQA.

Instruments of data collection

The instruments used for data collection include: document analysis, interview, and focus-group discussion. We used 'English' language to conduct interviews and focus group as this is the medium of instruction both for secondary and HE in Ethiopia (FDRE, 1994, 2003, 2009). The study participants involved from the University studied were known to the researchers as academic staff members of the institution, but they were not friends or allies.The researchers of this study are senior staff members in the university studied and conducted the interviews and focus group. In fact, English was not the participants' first language, however, there are no complexities, for example, cultural equivalence, because the researchers are fluent in the English language and have cultural ties with the study participants.

Document Analysis

The document analysis included both governmental and institutional written documents pertaining to curriculum reform initiatives in relation to student-centered pedagogy and continuous assessment methods. The primary focus was to find and interpret patterns in the data that are relevant to give more comprehensive information.

Interview

In-depth interviews were conducted one-on-one with senior managers and educational quality experts at the University studied, and external education quality experts from HERQA and MOE in Ethiopia. The main purpose of the interview with these participants was to explore the existing practices, challenges and paradoxes of curriculum reform in HE, particularly undergraduate programs. The interviews were tape recorded to facilitate data analysis. Then the interview was transcribed for analysis.

Focus Group Discussion

Focus group guiding questions were prepared in advance. The sample academic members represented at college level, all of them participated in a single focus group discussion. The focus group discussion points had similar substantive contents with the interview questions. Focus group was preferred because it was anticipated to collect shared understanding from individuals as well as to get their general views about the prevailing curriculum reform. Also, it was preferred because the interaction among participants likely yields the best information about the existing curriculum reform as the participants are similar to and cooperative with each other.

Data Analysis Procedures

This study used thematic analysis, incorporating a description of the context, the processes observed, and an explanation of elements explored in-depth (Lincoln & Guba, 1985). Data analysis is ongoing during the research process and allows researchers to condense an extensive amount of information into a more manageable format (Strauss & Corbin, 1998). Analysis involves organizing data, breaking them in to more manageable parts, developing codes, and searching for possible patterns. In order to organize the data, we read through the data line-by-line and thought about the meaning of each word, sentence, and idea (Creswell, 2012).

Ethical Issues

Before the data collection, the purposes of the study were explained to the participants and they were asked for their consent to participate in the interview and focus group discussion. The participants were also informed that the information they have provided will only be used for the purposes of the study and that it will not be given to a third party. In addition, the researchers ensured confidentiality by identifying the participants by codes rather than names.

Results and Discussion

Through a repeated process of summarizing and re-reading interview and focus group data, the findings were analysed to discern overarching themes that characterized each institution studied, at the same time, testing the constructions and interpretations of tentative claims against the evidence collected (Merriam, 2002). In the final analysis, five working categories were generated. These categories include: Factors initiating curriculum change; the curriculum change process and stakeholders involved; curriculum coherence in design and implementation, and the perceived challenges of curriculum change. Below the main findings of the study regarding these emerging themes will be presented.

Factors Initiating Curriculum Reform

Although many factors influence curriculum change at the program level, this study revealed that most of the study participants viewed curriculum change as irregular (even

infrequently), typically triggered in response to a specific stimulus external to the institution. One of the senior managers (SM3) pointed out that the process of curriculum change often begins by converting the external influence into an institutional influence, instead of discussion on the matters with the academics. Another teacher participant (T4) noted 'curriculum change, for instance, in relation to modularization, was triggered by the Federal MOE and a corresponding order came from the university leaders. In describing the situation, a Senior Manager (SM1) says:

> I am aware of curriculum development initiated at the national level, for instance, the MOE, based on the recommendations may be from other ministries, may recommend to the public universities to open some programs or to incorporate certain courses into the existing curricula. For instance, if you take Civics courses, although, the original curriculum may not contain or did not contain Civics courses; it has recently been incorporated into the curricula of all undergraduate programs. Even at times, not only individual courses, but also an entire program might be recommended. Of course, it didn't happen in our college, but for instance in the College of Engineering and Technology, there was an experience whereby the entire program was nationally endorsed and the various public universities revised their curricula accordingly.

Moreover, some teacher participants have the opinion that there were firm boundaries where negotiation might be possible and where it is necessary to adhere to the guidelines. The other potential source is through one of the senior universities in the country from which many of the undergraduate curricula have been obtained. One of the teacher participants (T1) notes:

> Curriculum change consisted far more in the diffusion of educational ideas from one institution (Addis Ababa University) to another than in the creation of new ideas by the academic members. In my experience, I have seen that many of the curricula were copied and failed to reflect contextual peculiarities.

Also, an education expert (EE4) has a similar opinion that the contents of many curricula are duplications. This indicates that curriculum change is often influenced by external forces in two ways: a) Those that result from institutional response to external pressures and b) Those that result from diffusion of educational ideas developed outside the institution. Thus the decision to try a new teaching method or mount a new program is both an external impetus and an internal decision. But some teacher participants of this study described the absence of negotiations and their involvement in internal decisions. In support of this, the other senior manager (SM3) highlighted the absence of participatory decision making in the process. Thus, it was not discussion and participatory decision making, but the interaction among internal and external influences that allows for transformation of change ideals. However, the decision to adopt a particular innovation depends on awareness of the innovation, interest in it, evaluation of its merits, and a small scale trial (Lattuca & Stark, 2009). Thus, there was no evidence that demonstrates consideration of maintaining mutual interest, evaluation, and pilot testing.

The Curriculum Reform Process and Stakeholders Involved

Providing adequate time for the complex preparation and review process is most needed for curricular reforms to be significant and lasting (Burgess, 2004). Moreover, the process may take much cooperation in order to build the understanding required among the various stakeholders (Walkington, 2002). In the studied university, the steps involved in the curriculum

reform, irrespective of the triggering forces, follow a similar procedure with very little change at some stages. The stages of the curriculum development processes, which is internally initiated include the following.

1) Forming an ad hoc committee,
2) Needs assessment,
3) Departmental discussion among staff members,
4) College level review by the academic commission,
5) National workshop
6) Submission to academic program officer, and
7) Senate approval.

The stages involved in externally initiated curriculum reform include the following.

1. Notification by the department head
2. Forming an ad hoc committee
3. Internal review at the college level
4. National curriculum review workshop
5. Harmonizing at the national level
6. College level review by the academic commission
7. Submission to the academic program officer, and
8. Senate approval.

In the process of curriculum change, the following stakeholders are the major participants: department heads, teacher, senior students, experts, and employers. One senior manager (SM1) stated:

> *Of course, when you develop a curriculum you do invite the relevant stakeholders including external stakeholders. For instance, if you are developing a Law curriculum you will invite people from the courts and the Ministry of Justice. If you are devising a curriculum, say on, Afan Oromo [which is one of the most widely spoken local language in Ethiopia], you may invite people from Oromiya Culture and Tourism so that way you want to take their inputs because ultimately you are graduating students to serve them.*

Therefore, both internal and external stakeholders participated in the curriculum planning process in the Ethiopian HE context. Particularly, the participation of employers from several institutions outside the university is interesting as this could help curriculum planners to give considerations to relevant matters in relation to the professional requirements of new graduates. However, some teacher participants have the opinion that there was a problem of fair representation of teacher participants from different universities. Also, there was a disproportionate influence of central framework presented by the institution leadership or the MOE (SM3). Sometimes, a deliberate exclusion of teachers' participation and an overreliance on senior academic member from a single university were apparent (T4). This results in key stakeholders harbouring indifferent feelings about change initiatives and loss of interest and ownership (T5). Making meaningful curriculum reform is hard enough without teachers' involvement in the process and without corresponding support from institutional management (Fullan, 2012).

Curriculum-as-designed and curriculum-in-action

As far as the experience in the studied colleges is concerned, curriculum change is coherent in terms of its design as the different curricula used a similar framework. All the interviewed senior managers confirmed that, a single curriculum consisted of three major components that signify coherence and consistency in terms of design. The three components are: Compulsory courses, Elective courses, and Community Based Education (CBE) courses. While the compulsory courses include subject area courses and general education courses, CBE courses include practical out-reach courses and student research. These compulsory and CBE courses were mandatory courses that each program should incorporate. Regarding the elective courses, they are designed in such a way to provide flexibility for students taking the program. One of the education experts (EE1) commented as follows:

If you look at the features of the different curricula, they all have certain compulsory courses and elective courses as well. So what happens is, individual universities cannot deviate or disregard the compulsory courses and usually at the beginning of each program the students have to take the compulsory courses. The students took elective courses late in the final year or so. On those elective courses, the students can take whatever courses they choose depends on what is available.

Even apart from the elective courses, the curriculum change allows for each individual department to modify the curriculum a little to make sure that it fits the particular context of the university. A senior manager notes that: 'For instance, we have our CBE philosophy, which is unique to our University, so we make sure that our curricula incorporate CBE courses from the very beginning, which does not exist in other universities.' This shows that there is that sort of room for modification or deviation from the beginning with regard to the harmonized curricula at the national level. Most of the time, the curricula initiated from within the university and the harmonized curricula from the Federal MOE that provides uniform curricula to be endorsed and implemented across the HE institutions of the country. Six communalities were observed that can be used as indications of curriculum coherence.

1.   Compulsory Courses,
2.   CBE Courses,
3.   Elective Courses,
4.   Student-centered teaching methods,
5.   Continuous assessment methods, and
6.   Tutorial and Laboratory Courses.

Fundamentally, every curriculum has three common elements, including compulsory courses, elective courses, and CBE courses. The other curriculum coherence issues demonstrated in the designed curricula were consistency of including different student-centered methods of instruction and different continuous assessment methods. The only difference observed in curriculum design between the two studied colleges was that of tutorial and laboratory components usually included in the curricula of Natural Sciences.

Moreover, some teacher participants felt that this area was not properly treated, though fundamental for the success of the change initiatives.. One of the teacher participants (T1) argues:

In this university, curriculum development and review experiences have partial emphasis. The main concern seems -just drafting a curriculum, conduct national review workshop, and senate approval. No one considers the potential problems surrounding the implementation of the curriculum. Even the nationally harmonized curriculum lacks revision and comment by different stakeholder groups since one or two experts from a single university involved in the revision process.

In support of this, one of the education experts (EE1) commented that the curriculum change process usually ends with the opening of a new program while the implementation of the curriculum is totally overlooked and compromised. A teacher participant (T6) felt the same regarding teaching practices using modules; as he said, except the preparation of a new teaching material, there has no real change in classroom pedagogic practice (T4). In general, it seems that change initiatives implemented so far have issues of coherence in action as there appears to be no interest in aligning plans with actions and presenting these coherently. It should be noted that a sound curriculum change is as good as its implementation (Fullan, 2007). Coherence by design needs to be supported by coherence in action (Barnett & Coate, 2005).

The curriculum is the heart of students' experience in HE (Barnett & Coate, 2005). It is a university's primary tool of shaping students learning in the directions valued by the academic members, parents, employers, and the larger society. Curricula should be revised on a regular basis so that it will be better to serve the changing needs of both students and society broadly. However, the realities of curriculum in the studied two colleges, did not back up with evidences that the curriculum change is complying with this. The very problem identified by the study participants was the lack of regularly reviewing curricula and conducting formative evaluation of a curriculum. Thus HE faced persistent implementation difficulties. Also, most of them viewed that revised curricula did not communicate to practitioners clearly and consistently. Apart from this, in their view, material and human resources are as important as academic culture. A historical analysis of the curriculum development and review processes in sub-Saharan Africa demonstrates a consistent minimal interest and commitment in curriculum implementation (Chisholm & Leyendecker, 2008). As per the findings of this study, Ethiopia is not immune to this failure.

Perceived Challenges

Although the Ethiopian education policy emphasized the utilization of student-centred pedagogies and continuous assessment methods, almost all the participants of this study agreed that currently these curricular reforms appear to have been undermined by the dominance of traditional lecture-based instruction and summative assessment discourse, and the lack of readiness of the teachers for change necessitated by the suggested curricular reforms. The current problem is the general belief that lecturing is enough to teach undergraduate courses and summative exam is an important vehicle to assess students' performances. One teacher participant (T6) states:

In my view, there has been a decline in students' proficient and advanced scores at lower and upper grade levels, and insufficient attention to English language competence across the secondary and tertiary curricula. Due to this, there is a serious quality issue across the entire education system.

Seen from a different perspective, an interviewed education expert (EE1), a senior manager (SM2) and teacher participants of focus-group (T1,T3, & T5) identified, paying insufficient attention to higher-level thinking skills across the curriculum, as one of the major hindering factors affecting curriculum change. Also the other teacher participant (T3) says, "In my view, undergraduate students did not like to engage in class activities. Sometimes, a majority of the students did not properly manage very simple questions, even if the teacher has given them previous similar examples."

Also, academic dishonesty is rampant among undergraduate students as the teacher participants of this study reported. For example, T4 states: "… the seniors or graduating class students negotiate with teachers to finish courses with lectures as early as possible and to reduce the number of continuous assessments." The other teacher participant (T6) pointed that group assignments are meant for engaging only one or two students as the other group members did not take individual accountability to complete assignments. Also, another teacher (T3) said that the provision of individual writing assignments is conceptualized as a matter of submitting of copies of materials from earlier submitted assignment of seniors. It is even common to find students copying from other students of the same class or different classes. These reported dishonest experiences are in line with the findings reported in a couple of earlier studies in Ethiopia (Tadesse & Getachew, 2009, 2010) and in other parts of the world (Imran & Ayobami, 2011; Liora Pedhazur, Kim, Karin, Holly, & Rebecca, 2008; Michelle, Nancy, & Candace, 2012).

Most of the study participants' agreed that the other major factors contributing to these implementation difficulties include: lack of necessary instructional resources for the proper utilization of curricular reform initiatives, teachers' lack of expertise with the proposed curricular reform, inappropriate curricular materials for student-centred pedagogy, and students' lack of prior experience in using student-centred pedagogy. On top of that at most HEIs, the academic culture did not prioritize and foster meaningful learning. The HEIs did very little in combating against these challenges, T1 comments:

> Often, however, in Ethiopian HEIs, training workshops take place at one time and in one location are apparent without follow-up, and without helping teachers build the range of skills and capacities needed to use the proposed reform in their actual classrooms.

These one-time sessions can certainly help introduce and build awareness on, for example, student-centred pedagogy. But training programs as they appear without support rarely resulted in the adoption of student-centred pedagogy at the classroom level (Goos, Dole, & Makar, 2007). To be effective and successful, teacher professional development must be of high quality and effective, enabling teachers to experience the types of instruction that they are supposed to use in their actual classes (Webster-Wright, 2010).

Rapid Expansion, Curriculum Reform and the Challenges Ahead

In the Ethiopian HE the rapid expansion has not been accompanied by a matching degree of capacity building or resource and facilities intensification (Assefa, 2008; Jimma, 2014). As the findings of the present study show, this sharp national focus and institutional endorsement are not accompanied by a renewed view of teachers as professional developers of the curriculum and agents of change. Moreover, whether recent initiatives with regard to teaching and learning have improved the quality of classroom practice is a matter of conjecture because of a lack of

empirical evidence. However, the data presented in this study suggest sign and symptoms that prevailing realities did not accord with the stated curriculum reform policies.

Apart from the rate of change, innovations are commonly applied regardless of contextual realities. Moreover, although these initiatives might be introduced at different times, and even sometimes parallel to each other, they were poorly aligned. These government initiated reforms are centralized, prescriptive, and top-down. Kelly's assertion neatly captures the essence:

> *The idea seems often to be a searching for some relatively quick, magical*
> *solution, the adoption of something which seems (rarely do they know) to work*
> *in another place, country or institution. We must do it now, you don't*
> *understand, there are real problems here… (Kelly, 1999, p. 210)*

Thus, the underlying assumption is that an innovative concept that has produced an outstanding result somewhere in a certain situation is guaranteed to be successfully replicated in other settings (Phillips & Ochs, 2003). Currently, it seems unthinkable to address institutional diversities and adopt divergent approaches to educational change at a time when the "top-down directions" prescribing what to include and how to proceed with change have reached a very high level (Areaya, 2010). The assumption, inherent in the model and accepted by the Ethiopian education bureaucrats is that a top-down change in policy would lead to transformation without paying necessary attention to implementation and internal capacity. This is inappropriate from a pragmatic perspective as it exerts too much pressure on the main actors failing to implement the reform initiatives as desired. This assumption lacks the main ingredients for successful implementation; that is a synergy between the challenges disrupting academic practice and the required support for proper implementation (Gaoming et al., 2012). Indeed, there can be broader implications of this fragmentation. Pressure without the immediate prospects of ameliorating these conditions is potentially dangerous as this may cause front-line implementers to experience fear, uncertainty, and frustration (Fullan, 2010). This shows that there is something profoundly wrong with the curriculum reform process, the way initiatives were introduced and the strategies employed to materialize them.

In the final analysis, it is clear that the HE system in Ethiopia has certainly grown both quantitatively and structurally but its growth is contentious and unsound as it has taken unparalleled twists and turns. Because these were precipitated by impulses from rapid expansion and problems with the change adoption model some of the intended effects were not realized as they were envisaged.

Recent research reports reveal that undergraduate students have competency gaps in some generic skills (Dinsa et al., 2014; Jimma University, 2010, 2011). Linked to these deficits is the failure to influence curriculum reform in relation to teaching and learning so that traditional forms of education delivery, most notably through the lecture format, and summative assessment have prevailed. What is very surprising is that these results have been apparent in the aftermath of actions taken to re-structure the HE system based on BPR study results, conducting institutional assessments for quality assurance, and harmonizing the undergraduate curricula to coherent and consistent curricula and national control of the HE sector.

Regardless of the strictures limiting change, however, the question still remains whether re-structuring is enough to bring change to HE. Research shows that re-structuring in itself is insufficient to effect change in behaviour (Anderson, 2010). Because a focus on re-structuring overlooks the potential for learning to occur in the changing context (Fullan, 2007). Also, this denies institutional academic culture and thus, may be incompatible with actual practice (Obasi

& Olutayo, 2011). More importantly, successful reform is not only a matter of implementing structural reform and processes but is also a matter of continuous effort to change attitudes and beliefs (Bromage, 2006).

Teacher and Institution-Level Responses to Curriculum Reform

In the twenty first century, universities are expected to be proactive in responding to pressure emanating from the external forces (globally), national needs and development agendas, and local circumstances (Goastellec, 2008). However, the traditional structural-rational approach where the government mandates top-down policies for all forms of educational change is most dominant in the Ethiopian situation as the findings of this study indicate. To remain viable, universities in Ethiopia must be able to respond promptly and wisely to this combination of change forces. As Fullan (2010) indicates, they have to become particularly skilled at not only identifying key quality improvements and strategic developments but also in making sure that these changes are put into practice successfully and then sustained.

Indeed, the traditional rhetoric and conceptualization of 'structural-rational approach' turns out to be too simplistic when examined in the context of the prevailing realities discussed in this study. Based on this, it is argued here that there may have been too much stress on top-down policy level change and whole-university change, at the cost of a focus on micro-change at the program level and instructional level. While the relevance of policy level and institutional level change initiatives is undisputed, for effective curriculum reform to enhance learning and teaching in HE in Ethiopia, the consistent promotion of contextualizing reform initiatives with a focus on the student learning experience is fundamental. This is only possible when the different hierarchies of educational change are well considered and acted upon harmoniously.

Such national and whole university initiatives, presented in this study, can warrant conceptual coherence in design and structure of change so that there are unified curricular guidelines and commonly agreed upon guiding documents. However, these cannot be taken as warranty for change in operation or enactment (van den Akker, 2003) and further impacting stakeholders' behaviour and attitude (Bromage, 2006). Research shows that the connection between national control of curriculum and curricular coherence is surprisingly elusive implying that 'national control of the curriculum makes no contribution to curricular coherence' (Schmidt & Prawat, 2006, p. 641). Coherence in design is conceptual and general, and cannot influence deep into the daily routines and operations at the instructional level and learning experience level. Thus for a meaningful and lasting effect, reform initiatives need to be insightfully overarching that spanning across a hierarchy of policy, institution, instruction and learning (van den Akker, 2003). In the Ethiopian HE context, a serious concern and measures are needed to create coherence in implementation.

The suggested curriculum reforms, in many respects, addressed the most important global queries for quality HE system in the 21 century (EE2). However, notwithstanding the reform intention, the academic culture has favoured a superficial change in the structure and contents of teaching with little or minimal effects to change in the beliefs and pedagogic practices of teachers (T1, T3, & SM1). This is partly intensified by the existing belief in the teacher-centred approach and the inadequacy of the professional development model (Piper, 2009). Also, the assessment culture has hindered a shift towards an assessment for learning approach mainly because of the enduring belief in and commitment to classroom testing and examinations. As some participants of this study state teachers are generally not well versed in the knowledge and

skills needed to put the suggested curriculum reform in to effect (T4, SM3, EE1, & EE4). The underlying cause for these may be because most teachers working in Ethiopian HE did not have formal teacher education courses (Tadesse & Gillies, 2015), and some of them are with lower educational qualification expected for the level (MOE, 2015). Even for those who did pass through formal teacher education, research reviews have identified several problems with the quality of education. These include: out-dated curricula, limited practice-based learning opportunities, weaknesses in the knowledge and expertise of teacher educators and poor institutional management (Hunde & Tacconi, 2014; Semela, 2014). This implies that there was a minimal awareness among stakeholders and rudimentary level of application of active learning and continuous assessment. Thus, to improve student achievement, improving teacher quality and their capacity to use student-centered teaching and continuous assessment is central.

Summary of Key Findings

First, the trend of educational changes in the Ethiopian HE system is governed by a 'rational-structural paradigm'. Within the structures imposed by the prevalence of this paradigm, the initiatives formulating policies and guidelines have foundered during implementation. Indeed, the implementation of proposed changes has not realized the sorts of transformational changes envisaged by the architects. While current educational change efforts have brought changes to structures and centrally determined standards and consistency in the application of these standards, there appears to be a lack of focus on the needs of people, relationships, and learning. This suggests that reform efforts have less consideration in the cultural aspects of HE academe thus it is very difficult to bring lasting change.

Second, this study has demonstrated that the teachers have not been treated as the main change agents as they did not participate in the decision process in curriculum reform. The rapid expansion and reform agendas seem to be intensifying their fear, frustration and uncertainty. Moreover, implementation has been found difficult by many because of a lack of clarity and coherence in the documents that have guided implementation, and the lack of systematic processes for closing the implementation gap. The change initiatives also failed to redress the prestige balance between top-down and bottom-up approaches to change, a disparity that has been further impaired by successive accountability-based and institutional effectiveness-focused assessment exercises. Putting all together, the findings suggest five key areas of concern for the management of curriculum reform.

1. The forces, triggering change are mostly external providing little room for internal contextual factors and the development of change from within the institution.
2. Conformity and uncertainty as well as the rapidity of change have created tension for academics, as the participants of this study attested.
3. The models influencing change are essentially one and the same, with the government's controlled, centralized, and one size-fits-all approach being driven by policy formulated and pre-determined by the central office.
4. Evaluative processes are absent. This makes it difficult to track records of success and failure because of the absence of research evidence about whether impacts have been made or not cannot be directly checked through the process.
5. Challenges accompanying the stated curriculum reform also lay in the quality and quantity of academic staff. Most of the teachers did not seem familiar with educational

principles as they were not trained in teaching. The most challenging problem is the implementation gap, particularly the absence of a functional enactment zone representing individual and social change spaces for the academics. Study participants generally found tensions between the curriculum reform policies mandating change and the actual teaching and assessment practices. While the university studied enthusiastically embarked on curriculum reform initiatives the teaching and assessment practices did not comply with.

Conclusions and Implications

We need to redress the current circumstances by counterbalancing recent change initiatives with attentiveness to the context in which they are applied. This may lead to their modification in ways that are congruent with the existing university culture. Along with this, consideration needs to be given to raising the awareness of the implementers so there can be an ongoing process of development and maturation. For this process to take place, it is suggested that in the place of the traditional (rational-structural) paradigm, a more inclusive approach to educational change that combines and integrates bottom-up and top-down approaches needs to be adopted.

It is argued that mandating reform via a "policing" and "one-size-fits all" approach does not work. Rather other mechanisms that may provide a qualitatively different approach to support reform needs to be identified and priorities must be set. Clearly, this needs to incorporate an evidence-based component where comprehensive data is accumulated tracking satisfaction and impact. What is critical here is to achieve consensus supported by empirical evidence that provides direction for change (Darling-Hammond, 2005). The only way forward for nurturing healthy curriculum reform appears to reside in adopting a "developmental" approach, where re-culturing, contextualizing, and learning and re-designing are the most essential pillars (Barnett & Coate, 2005; Pham, 2016). Our argument here is that nurturing curricular reform rests on the adoption of processes that create consensus, ensure equity, develop and enforce standards and build local capacity for those who practice the reforms. This implies that education bureaucrats and senior managers need to be more concerned with learning than compliance, promoting support rather than merely giving in to external pressures and demands (Darling-Hammond, 2005).

For teachers to enact changes in ways that influence the core of their practice, we suggest as Spillane (1999) does, that the central point is the extent to which their enactment zones are more social rather than individualistic, involve rich discussions about the content of the changes and the practicing of these change ideas with other teachers and change experts (Spillane, 1999). These ideas need to be distilled into material resources that support discussions about change and its improvement.

Based on the realities of change embedded in the HE sector studied, the present study recommends the following for effective curriculum reform to enhance learning and teaching in universities in Ethiopia. Policy level change needs to embody important features of change strategy and prescribes that only in the broadest manner in response to institutional plans. Further advice needs to be supplied by academics at the different universities and a great deal of mutual trust needs to be generated. This process is innovative and has the capacity to address enduring questions about the management of curricular reforms in universities in Ethiopia. While this can

be time consuming and requires more commitment by the institution and teachers and excellent coordination among people, long-lasting success will repay the effort in the end. A strong recommendation is that engagement, collegiality, and empowerment are the most effective bases for a curriculum reform (Jimma, 2014).

In Ethiopian HE, engagement in implementing the renewed curricula can happen in a supportive environment where job-embedded and on-site support model plays a key role to empower (Ansyari, 2015). This engagement brings in a positive learning experience and encourages the enhancement of teachers and students local experience (Jimma, 2014). Under this influence, teachers have the power to shift their paradigm to create an equitable learning environment for all students. When this is combined with a collegial atmosphere, which can be achieved through establishing individual conversations and social networking among teachers, it is likely that teachers exchange their personal beliefs and pedagogical knowledge and skills in relation to the proposed curriculum reforms among themselves. The entire effort provides a means by which to realize appropriate curricular reforms in HE in Ethiopia and beyond.

References

Adamu, A. Y., & Addamu, A. M. (2012). Quality Assurance in Ethiopian Higher Education: Procedures and Practices. *Procedia - Social and Behavioral Sciences, 69*, 838-846. https://doi.org/10.1016/j.sbspro.2012.12.006

Akalu, G. A. (2014). Higher Education in Ethiopia: Expansion, Quality Assurance and Institutional Autonomy. *Higher Education Quarterly, 68*(4), 394-415. https://doi.org/10.1111/hequ.12036

Anderson, S. (2010). Moving Change: Evolutionary Perspectives on Educational Change. In A. Hargreaves, M. Fullan, & A. Lieberman (Eds.), *Second International Handbook of Educational Change* (pp. 65-84): Springer Science+Business Media B.V.

Ansyari, M. F. (2015). Designing and evaluating a professional development programme for basic technology integration in English as a foreign language (EFL) classrooms. *Australasian Journal of Educational Technology, 31*(6), 699-712. https://doi.org/10.14742/ajet.1675

Areaya, S. (2010). Tension between massification and intensification reforms and implications for teaching and learning in Ethiopian public universities. *African Journal of Higher Education, 8*(2), 93–115.

Ashcroft, K., & Rayner, P. (2012). The purposes and practices of quality assurance in ethiopian higher education: Journey, adaptation and integration. *International Journal of Business Anthropology, 3*(2), 19.

Assefa, K. (2008). The unfolding trends and consequences of expanding higher education in Ethiopia: Massive universities, massive challenges. *Higher Education Quarterly, 63*(1), 29-45.

Barnett, R., & Coate, K. (2005). *Engaging the Curriculum in Higher Education*. Maidenhead: McGraw-Hill Education.

Barnett, R., Parry, G., & Coate, K. (2001). Conceptualizing Curriculum Change. *Teaching in Higher Education, 6*(4), 435-449. https://doi.org/10.1080/13562510120078009

Bromage, A. (2006). The Management of Planned Change. In L. Hunt, A. Bromage, & B. Tomkinson (Eds.), *The Realities of Change in Higher Education: Interventions to Promote Learning and Teaching* (pp. 1-14). London and New York: Routledge.

Burgess, H. (2004). Redesigning the Curriculum for Social Work Education: Complexity, Conformity, Chaos, Creativity, Collaboration? *Social Work Education, 23*(2), 163-183. https://doi.org/10.1080/0261547042000209189

Chisholm, L., & Leyendecker, R. (2008). Curriculum reform in post-1990s sub-Saharan Africa. *International Journal of Educational Development, 28*(2), 195-205. https://doi.org/10.1016/j.ijedudev.2007.04.003

Cohen, A., Fetters, M., & Fleischmann, F. (2005). Major Change at Babson College: Curricular and Administrative, Planned and Otherwise. *Advances in Developing Human Resources, 7*(3), 324-337. https://doi.org/10.1177/1523422305277173

Cornbleth, C. (1988). Curriculum in and out of Context. *Journal of Curriculum and Supervision, 3*(2), 85-96.

Creswell, J. W. (2012). *Educational research: planning, conducting, and evaluating quantitative and qualitative research*. Boston: Pearson.

Darling-Hammond, L. (2005). Policy and Change: Getting Beyond Bureaucracy (pp. 362-387). Dordrecht: Springer Netherlands.

Dinsa, F., Tollessa, B., Tadesse, K., & Ferede, B. (2014). *Assessment of the Implementation Status of the Nationally Harmonized Competence Based Modular Curricula in Ethiopian Public Universities*. Education Strategy Center. Addis Ababa, Ethiopia.

Education Strategy Center. (2012). *A guideline of modularization for Ethiopian higher education institutions*. Ministry of Education. Addis Ababa, Ethiopia.

Engel, C., & Tomkinson, B. (2006). Engaging higher education in the global challenge of sustainability. In L. Hunt, A. Bromage, & B. Tomkinson (Eds.), *The Realities of Change in Higher Education: Interventions to Promote Learning and Teaching* (pp. 156-166). London and New York: Routledge.

FDRE. (1994). *Education and Training Policy*. Addis Ababa: St. George Printing Press.

FDRE. (2003). *Higher education proclamation No 351/2003*. Addis Ababa: BSPP.

FDRE. (2009). Higher education proclamation No. 650/2009. *Federal Negarit Gazeta*.

Fullan, M. (2007). Change Theory as a Force for School Improvement (Vol. 6, pp. 27-39). Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-1-4020-6022-9_3

Fullan, M. (2010). Positive pressure. In A. Hargreaves, A. Lieberman, M. Fullan, & D. Hopkins (Eds.), *Second international handbook of educational change* (pp. 119-130). New York: Springer. https://doi.org/10.1007/978-90-481-2660-6_7

Fullan, M. (2012). What America can learn from Ontario's education success. Retrieved from http://www.michaelfullan.ca/media/13501746920.html

Gaoming, Z., Yong, Z., & Jing, L. (2012). Between a rock and a hard place: higher education reform and innovation in China. *On the Horizon, 20*(4), 263-273. https://doi.org/10.1108/10748121211272489

Goastellec, G. (2008). Changes in Access to Higher Education: From Worldwide Constraints to Common Patterns of Reforms? *International Perspectives on Education and Society, 9*, 1-26. https://doi.org/10.1016/S1479-3679(08)00001-7

Goos, M., Dole, S., & Makar, K. (2007). Designing Professional Development to Support Teachers' Learning in Complex Environments. *Mathematics Teacher Education and Development, 8*(Journal Article), 23-47.

Hunde, A. B., & Tacconi, G. (2014). Teacher Educators' Practices from the View of Building Lifelong Learning Capabilities in Student Teachers. *Procedia - Social and Behavioral Sciences, 136*, 496-500. https://doi.org/10.1016/j.sbspro.2014.05.363

Hussey, T., & Smith, P. (2010). *The trouble with higher education: A critical examination of our universities*. New York and London: Routledge.

Imran, A. M., & Ayobami, O. R. (2011). Academic Dishonesty among Tertiary Institution Students: An Exploration of the Societal Influences Using SEM Analysis. *International Journal of Education, 3*(2), E9-E9. https://doi.org/10.5296/ije.v3i2.636

Jimma University. (2010). *Jimma University internal quality assurance study report*. (Unpublished research report). Jimma University. Jimma.

Jimma University. (2011). *Jimma University tracer study report*. (Unpublished research report). Jimma University.

Kassahun, T. (2010). Rethinking institutional excellence in Ethiopia: adapting and adopting the balanced scorecard (BSC) model. *Journal of Business and Administrative Studies, 2*(1), 22-53.

Kelly, A. (1999). *The curriculum: Theory and practice* (4th ed.). London: Sage.

Lattuca, L. R., & Stark, J. S. (2009). *Shaping the college curriculum: academic plans in context*

Letschert, J., & Kessels, J. (2003). Social and political factors in the process of curriculum change. In J. J. H. v. d. Akker, W. Kuiper, & H. Uwe (Eds.), *Curriculum landscapes and trends* (pp. 157-176). Dordrecht: Kluwer Academic Publishers.

Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Beverly Hills, Calif. ; London: Sage Publications.

Liora Pedhazur, S., Kim, G., Karin, J. S., Holly, S. P., & Rebecca, S. (2008). A Multidimensional Scaling of College Students' Perceptions of Academic Dishonesty. *The Journal of Higher Education, 79*(5), 587-607. https://doi.org/10.1353/jhe.0.0021

McRoy, I., & Gibbs, P. (2009). Leading Change in Higher Education. *Educational Management Administration & Leadership, 37*(5), 687-704. https://doi.org/10.1177/1741143209339655

Merriam, S. (2002). *Qualitative research in practice: examples for discussion and analysis*. San Francisco: Jossey-Bass.

Michelle, W., Nancy, M., & Candace, H. L. (2012). Undergraduates and Academic Dishonesty. *International Journal of Business and Social Science, 3*(1).

MOE. (2015). *Education Statistics Annual Abstract 2006 E.C (2013/2014)*. Addis Ababa: EMIS, Planning and Resource Mobilization Directorate.

Obasi, I., & Olutayo, A. (2011). Globalization, the Bologna Process and African Universities: Limits and contradictions of market-oriented higher education reforms. *African Journal of Higher Education, 7*(1&2), 159-187.

Pham, T. (2016). Student-centredness: Exploring the Culturally Appropriate Pedagogical Space in Vietnamese Higher Education Classrooms using Activity Theory. *Australian Journal of Teacher Education, 41*(1), 1. https://doi.org/10.14221/ajte.2016v41n1.1

Phillips, D., & Ochs, K. (2003). Processes of Policy Borrowing in Education: Some Explanatory and Analytical Devices. *Comparative Education, 39*(4), 451-461. https://doi.org/10.1080/0305006032000162020

Piper, B. (2009). *Student-centered pedagogy's causal mechanisms: An explanatory mixed methods analysis of the impact of in-service teacher professional development in Ethiopia.* (Dissertation/Thesis).

Schmidt, W. H., & Prawat, R. S. (2006). Curriculum Coherence and National Control of Education: Issue or Non-Issue? *Journal of Curriculum Studies, 38*(6), 641-658. https://doi.org/10.1080/00220270600682804

Semela, T. (2011). Breakneck expansion and quality assurance in Ethiopian higher education: Ideological rationales and economic impediments. *Higher Education Policy, 24*(3), 399-425. https://doi.org/10.1057/hep.2011.11

Semela, T. (2014). Teacher Preparation in Ethiopia: A Critical Analysis of Reforms. *Cambridge Journal of Education, 44*(1), 113-145. https://doi.org/10.1080/0305764X.2013.860080

Shawn, L., & Eunsook, H. (2011). Comprehensive curriculum reform in higher education: collaborative engagement of faculty and administrators. *Journal of Case Studies in Education, 2*(Journal Article), 1.

Spillane, J. P. (1999). External reform initiatives and teachers' efforts to reconstruct their practice: the mediating role of teachers' zones of enactment. *Journal of Curriculum Studies, 31*(2), 143-175. https://doi.org/10.1080/002202799183205

Stark, J. S., Lowther, M. A., Sharp, S., & Arnold, G. L. (1997). Program-Level Curriculum Planning: An Exploration of Faculty Perspectives on Two Different Campuses. *Research in Higher Education, 38*(1), 99-130. https://doi.org/10.1023/A:1024952829701

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: techniques and procedures for developing grounded theory*. Thousand Oaks: Sage Publications.

Tadesse, T. (2014). Quality Assurnace in Higher Education in Ethiopia: Boon or Bandwagon in Light of Quality Imporvement? *Journal of Higher Education in Africa, 12*(2), 131-157.

Tadesse, T., & Getachew, K. (2009). Faculties' Perception and Responses to Academic Dishonesty of Undergraduate Students in Education, Business and Economics. *Ethiopian Journal of Education and Sciences, 4*(2).

Tadesse, T., & Getachew, K. (2010). An exploration of undergraduate students' self-reported academic dishonesty at Addis Ababa and Jimma Universities. *Ethiopian Journal of Education and Sciences, 5*(2).

Tadesse, T., & Gillies, R. (2015). Nurturing Cooperative Learning Pedagogies in Higher Education Classrooms: Evidence of Instructional Reform and Potential Challenges. *Current Issues in Education, 18*(2), 1-18.

Tadesse, T., Mengistu, S., & Gorfu, Y. (2016). Using research-based evaluation to inform changes in the development of undergraduate sports science education in Ethiopia. *Journal of Hospitality, Leisure, Sport & Tourism Education, 18*, 42-50. https://doi.org/10.1016/j.jhlste.2016.02.002

van den Akker, J. (2003). Curriculum perspectives: An introduction. In J. van den Akker, W. Kuiper, & H. Uwe (Eds.), *Curriculum landscapes and trends* (pp. 1-10). Dordrecht: Kluwer Academic Publishers. https://doi.org/10.1007/978-94-017-1205-7

Walkington, J. (2002). A Process for Curriculum Change in Engineering Education. *European Journal of Engineering Education, 27*(2), 133-148. https://doi.org/10.1080/03043790210129603

Webster-Wright, A. (2010). *Authentic professional learning: making a difference through learning at work* (Vol. 2.). Dordrecht: Springer Netherlands. https://doi.org/10.1007/978-90-481-3947-7

Zerihun, Z., Beishuizen, J., & Van Os, W. (2011). Conceptions and practices in teaching and learning: Implications for the evaluation of teaching quality. *Quality in Higher Education, 17*(2), 151-161. https://doi.org/10.1080/13538322.2011.582793

Acknowledgements