Actor-network view of the Distance Education Policy Process in Mozambique

Thesis Report by:

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Abstract

Governments and public institutions are in most cases biased to follow rational arguments linked to social events when evaluating their policies. They focus on social aspects of the outputs and outcomes to formulate and implement policies. This paper explores the influence of humans and non-human actors in the formulation and implementation of distance education policies in Mozambique. For that, an actor-network theory is used to explore how actors define the problem, propose solutions, implement the programs, and attempt to influence the each other and the all policy formulation and implementation process of distance education in Mozambique. An interpretative case study approach was used. To explore the phenomenon (policy formulation and implementation), it was realized some documents analysis (education policies, education strategic plans, distance education papers and distance evaluation reports) and semi-structured interviews targeting policy makers (National Institute for Distance Education) and practitioners (Universidade Eduardo Mondlane). At the end, key challenges and suggestions are also presented based on the findings of the research.

Keywords: actor-network theory, distance education policy, e-learning, Mozambique, sociology of translation, Universidade Eduardo Mondlane

1. Introduction

Major universal education goals in developing countries are related to improve quality, drive education access for all and eradicate illiteracy (UNDP, 2009). Here, distance education (DE) has a role, mainly, when integrated with information and communication technology (ICT) (Antonacci, 2002 and Rosen, 2009). Education development would a reference of the DE policy process approaches. DE policy process is a current research field (Demiray, 2010; MEC, 2001; and Pacey & Keough, 2003) and could support the reaching of above goals. DE policy implementation and ICT integration in education are fields more researched in developed countries and less in developing countries (Moore & Anderson, 2003; Visser, Visser, Simonsin & Amirault, 2005; and Demiray, 2010). Studies by Pacey & Keough (2003); Dirr (2003); and Simonson & Bauck (2003) address issues and trends on DE policy content and implementation, such as, regulations, strategic plans, technology in education, DE models, institutional capacity. Most of existing research on these issues was conducted targeting the developed world. Less research on DE policy have been done in developing countries (Eastmond, 2006; Nhavoto, 2005; Visser-Valfrey, Visser & Buendia 2005; and Demiray, 2010).

Mozambique, as a developing country, the situation is not different. The existing research is characterized by DE implementation cases descriptions and best practices report (Franque, 2008;
More & Pereira, 2007; and Visser-Valfrey, Visser & Buendia, 2005). By tracking DE changes in Mozambique starting from the traditional experiences to ones fully supported by ICT, and from absence of DE regulatory environment to the current institutionalized stage, many actors were involved and issues emerged from that process (MEC, 2001; MEC, 2006; Visser-Valfrey, Visser & Buendia, 2005). But, there is little research conducted in Mozambique which explores this transforming process (Visser-Valfrey, Visser & Buendia, 2005 and Nhavoto, 2005).

The transforming process is a consequence of actors (human, policies, plans, technology, etc) relations to gain knowledge, legitimacy and power (Law, 1999) in tangling DE policy formulation and implementation (Eastmond, 2006). This means that, there are mutual effects targeting human and non-human actors, which are difficult to build the distinction between them. Then, it is recommended to analyse these relations by undertaking an assembling of the human and non-human actors (Latour 2005).

The general aim of this study is to explore the transformational issues (context, resources, programs, activities) of the actors (policy makers, practitioners, technology, documents, etc) on Mozambique’s DE policy process. For that, two research questions were set:

1. What actors have influenced the Mozambique’s DE policy process and how?

2. What challenges are faced within the Mozambique’s DE policy process and what suggestions for improvement can be made?

The research (i) contributes to literature describing how actor-network theory could be used for tracing the DE policy process in developing countries and (ii) can be used to inform the policy makers and practitioners in Mozambique to understand actors’ role in DE policy formulation and implementation.

2. The policy process

The policy process has three distinct stages: formulation, implementation and evaluation (Parsons, 1995, and Spellacy, 2005). Each stage is a complex phenomenon that could be an object of research. Public policy research explores goals and objectives definition, feedback from programs implementation, outcomes and its affects. According to Hill and Hupe (2002) and Pacey and Keogh (2003) the policy formulation and implementation takes different perceptual structures in different socio-technological and institutional settings. Two groups of actors are involved in policy process, those who define the policy (policy community) and those who influence the policy (policy network) (Pacey & Keogh, 2003). These approach, considers actors only from the social world (humans), but there are other actors that influence the policy, which are non-human (natural world), such as the technology, documents, etc.

A more compressive version, Figure 1, includes elements both from the social and natural world: communities, context, resources, strategic plans, programs and policies. Figure 1 is an example of a public policy process affected by an assembling of actors with different interests (goals and objectives) and resources.
3. The actor-network and sociology of translation

The actor-network theory (ANT) is an approach developed by Bruno Latour, Michel Callon and John Law, as contribution to anthropology and sociology studies within the science and technology field. In this study, ANT is presented as theoretical foundations, as well as, a methodology considering that it offers an analytical and constructive view of DE policy process. According to Latour (1997), ANT provides a framework to describe actors in action in a context of symmetry (both human and non-human actors are sources of influence), translation (implementation phases), and actor-network (tied entities implementing a shared vision). For Latour (1997) actor is everything that acts, engages in, and affects the world and the world affects him/her/its back. Some examples are institutions, technological artifacts, documents, people, etc. Therefore, an actor can be of a human or non-human kind and together form an (heterogeneous) actor-network (Chesterman, 2006). According to Callon (1986) and Latour (1997, 2005), ANT traces actors’ imposed experiences, and values on others. This takes us to a translation process used to capture dynamics of actors on enrolling others into networks, then evolving the DE policy formulation and implementation (goals, objectives, context, programs, feedback, outputs and outcomes).

According to Callon (1986) and Latour (1999) there are four “moments” of translation for network building: problematization, interessement, enrolment and mobilization. In the policy process, these moments are related to obligatory point of passage (OPP) whereas actors have a common/shared vision on top of their individual interests that enables the policy formulation and implementation. In our case study, to explore the course of DE policy formulation and implementation we applied the
four “moments” of translation and OPP according to Table 1 definitions to describe the public policy process illustrated in Figure 1.

Table 1: Definitions of the “moments of translation” concepts

<table>
<thead>
<tr>
<th>Concept</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>Problematization</td>
<td>It is the initial translation moment which an actor or actors identify the problem and construct solution. It involves also defining the identities and interests of other actors that are consistent with own interests. (Callon, 1986; Kitchen, 2000).</td>
</tr>
<tr>
<td>Obligatory point of passage (OPP)</td>
<td>It is referred to the only negotiation route where all the actors need to pass to satisfy the interests that have been attributed to them by the network builder. Thus, the lead actor(s) creates an obligatory passage point (OPP), where their knowledge becomes indispensable to the solution of the problem (Callon, 1986; and Kitchen, 2000).</td>
</tr>
<tr>
<td>Interessement</td>
<td>The second moment of translation is in which the lead actor(s) start to build the network and seeking alliances by convincing others that their solution is the most appropriate (Callon, 1986; and Kitchen, 2000).</td>
</tr>
<tr>
<td>Enrolment</td>
<td>The third moment of translation is the result of success of the first two moments and leads to a network of alliances. The stabilization of the network of alliances is reached by other actor(s) accepting the interests defined by the lead actor(s) (Callon, 1986; and Kitchen, 2000).</td>
</tr>
<tr>
<td>Mobilization</td>
<td>The fourth moment of translation a consolidation of the stabilization of the network of alliances, being the solution proposed then accepted by most actors. A legitimacy of the spokesperson is settled (Callon, 1986; and Kitchen, 2000).</td>
</tr>
</tbody>
</table>

4. Methodology

4.1 Research Settings

The research was undertaken in Mozambique. According to Human Developing (HD) Report (UNDP, 2009), Mozambique is a developing countries. The HD index is 0.402 (2007), adult illiteracy, 56.6% (2007), Human Poverty Index, 46.8 (2007) (UNDP, 2009). The total population is about 20 million inhabitants (2007), mostly living in rural area (INE, 2007). In 2009, there was 1 teacher to 63 primary school students and 1 teacher to 49 secondary school students (MEC, 2010). There were in 2007 a total of 25 higher education institutions with 63,476 university students and 1,436 full time and 1,844 part-time university lecturers (MEC 2009). There were DE development initiatives since 80’s, but the initial initiatives were in a small scale and did not sustain for long (Franque, 2008). Reasons for that are associated to lack of policy instruments, expertise and infrastructure. Education Strategic Plans, 1999–2005 and 2006–2010/11, considered DE as a vehicle to expand education opportunities and promote regional and social equity (MEC, 1999 and 2006).

This research explored both the policy makers, and policy practitioners. The National Institute of Distance Education (INED) is the policy maker selected. INED is an autonomous unit created to implement and coordinate the DE policies and plans (CM, 2006). The policy practitioner selected is the Universidade Eduardo Mondlane (UEM) and its implementing departments, namely the Faculty of Economy (FoE), Centre for Distance Education (CEND) and Informatics Centre (CIUEM). Among the DE practitioners UEM was the selected because is the only entity in Mozambique delivering a fully online based course. The DE regulations, approved in 2009, focuses on the traditional DE model and leaving open all aspects of ICT (CM, 2009), therefore this makes relevant to study the effects of UEM online course on policy process.
4.2 Research methods

The current research is a case study about DE policy process, following a qualitative and interpretative approach (Patton, 2002, and Oates, 2005). A case study, as research strategy, is appropriate because supports in-depth querying of a contemporary phenomenon (Yin, 2008). The study focused on tracing the history of policy formulation and implementation, and the actors’ relations in the process (Law, 1986). According to Patton (2002) it is important to understand the patterns and insights emerged from the policy process. All data collection and analysis will be based in the ANT by investigating the relations among the actors resulting from contacts, associations, connections, disagreements, approaches and aloofness (Latour, 1999) during the DE policy formulation and implementation process.

4.3 Data Collection

Data collection (Table 2) was based on semi-structured interviews and on documents study (Denzin & Lincoln, 2005). It was interviewed seven people (Annex 1), who are department or course managers at INED, CIUEM, CEND and FoE, and technology developers from CIUEM. The interviews were individual and took about 40-50min each and were all audio recorded. Later, the interviews were written in text for analysis. The distance education history was recovered from studying documents (Annex 2) like policies, strategic plans, evaluation reports, papers and other official publications.

The interview questions were prepared based on policy process elements shown in Figure 1, namely goals, objectives, activities, content, resources, programs and outputs. Also the questions are related to elements involved on sociology of translation described in Table 1. The guide interview is presented in Annex 3. The questions were developed based on the specifics of each target group. Some questions were repeated in order to get other perspectives from different interviewee.

Table 2: Data collection guide

<table>
<thead>
<tr>
<th>Data collection method</th>
<th>Target</th>
<th>Data collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-structured interviews</td>
<td>INED</td>
<td>policy design process and implementation (policy mandates and boundaries, policy makers interactions, resources involved) the policy maintenance (feedbacks, intended and observed outputs, trends and issues), programs, technology concerns, conflicts and challenges, and partners involved and their roles.</td>
</tr>
<tr>
<td>Semi-structured interviews</td>
<td>CEND &amp; Faculty of Economy</td>
<td>e-learning project initiation (history, goals, objectives, scope, management) and the collaboration process (participants, negotiations, objectives, etc.), project implementation (business process re-engineering, conflicts, challenges, etc.) and partners involved and their roles.</td>
</tr>
<tr>
<td>Semi-structured interviews</td>
<td>CEND, Faculty of Economy &amp; CIUEM</td>
<td>Collaborative networks, partners &amp; roles, resources involved &amp; respective management, conflicts, technology selection process, technology development process, technology concerns, etc.</td>
</tr>
<tr>
<td>Documents analysis</td>
<td>Policies &amp; strategies, research &amp; evaluation reports, and other official publications</td>
<td>distance education history, financing history, goals, objectives, activities, intended and observed outputs, scope, management process, etc.</td>
</tr>
</tbody>
</table>
4.5 Analysis

The final research findings are presented as an interpretative study of a policy analysis (Patton, 2002; and Denzin & Lincoln, 2005) by following a prescription of sociology of translation (Table 1). The analysis obeyed a checking of policy goals to see how they were translated into intended or observed outputs and how that process occurred and what have affected. From the description of translation challenges were identified and proposed some suggestions to overcome them.

5. Case study reporting

5.1 Policy and actors

The Education Strategic Plan (1999–2005) was the first Government Plan that clearly stated the need to define policies, strategies and financing mechanisms to foster DE developments (MEC, 1999). The former Ministry of Higher Education, Science and Technology (MESCT) and Ministry of Education (MINED) appointed, in 2001, a task force, known as CIINED (Commission for implementation of the National Institute for Distance Education). This task force masterminded the framework and implementation strategy of DE in Mozambique. Later, in 2006 the task force was transformed into INED, an autonomous institution under MINED, with the responsibilities of setting policies to regulate, promote and monitor DE processes (CM, 2006). The DE strategy identified some higher education institutions to initiate pilot projects, namely Universidade Politécnica (A Politénica), UEM and UP. The UEM project is the object of this study, due to its uniqueness. It is the first course completely web based, and all contact among teachers and students is done through internet. The course is being implemented in partnership among FoE (business management experts), CEND (DE experts) and CIUEM (technology experts).

The implementation process includes development of policy enforcement institutions. INED and the DE regulations are two policy enforcement mechanisms officially created. Four DE pilot projects were initiated as part of capacity building. These initiatives are not the first ones in the country. There were other few experiences in 80s and 90s that unfortunately were less documented (Visser-Valfrey, Visser & Buendia, 2005) which makes difficult to learn or build from the past. INED and its partners organized series of short and medium term courses in DE planning, implementation and management. Also, lecturers were trained on producing self instructional material, using information technologies. Some advocacy workshops and TV debates also took place as part of awareness building on DE processes and instruments.

Actors are entities involved in the policy process, having different forms, attributes and interactions to satisfy their interests. The key actors identified were:

- **At policy level**: former MESCT, MINED and the former INED task force who master minded the DE policy and the implementation strategy. The current INED who is DE education coordination and policy enforcement board.

- **At practitioners level**: all pilot institutions identified in the implementation strategy. Within UEM, we could specify more actors, e.g. staff from INED, CEND, CIUEM and lecturers of the FoE who were direct involved in implementation of the online course.
• **financing entities:** World Bank, Ford Foundation and the Commonwealth of Learning who financed the capacity building of INED and the DE pioneers.

• **Policies:** 2001’s DE implementation strategy and the 1999 and 2006’s Education Strategic Plans.

• **technologies:** internet and the web platforms (Chissimba and AulaNet) applications (Email, Blogspot and Skype) used to deliver the UEM online course.

... we looked at doing a course that would be different from the existing ones in the FoE. Therefore, we relayed on CEND’s DE pedagogical expertise and CIUEM’s technology expertise and we chose a web based course. The FoE provided human resources to be trained in DE course material writing and technology use (Dr. Nhabinde, FoE).

### 5.2 Policy Process

#### Problematization

As initial translation moment, we look at problem and how actors constructed the solution. The goal of Mozambique’s Education Strategic Plans (1999–2005 and 2006–2010/11) is the education for all, by expanding education opportunities throughout the country (MEC, 2006). This goal is challenged with the absence of enough classrooms and teachers at all education levels, and with the fact that most of education hubs are located in the capital cities. In this regard, DE has been seen as contributor for professional training and extension of education opportunities to all Mozambicans independent to his/her location. Looking at the history of DE, most activities focused on professional and technical courses delivery, like training of newly contracted teachers without the pedagogical skills (Franque, 2008). Therefore, the DE implementation strategy included four pilot projects.

... even that there were DE practices from the past, still, DE was not common practice in Mozambique and there are people who do not believe on DE quality. We conducted some pilot projects, trainings and awareness activities to enhance the implementation capacity (Dr. Franque, INED).

The implementing institutions had the freedom to define what type of course and how to deliver it, but all pilot projects were subject of INED final approval. The criteria were two major criteria used in designing and approval. The pilot projects should serve to prevent students to move from their living areas and the courses should provide solutions to specific structural development problem of the country. The UEM model is an attempt to address these challenges. The selected online BSc. course in Business Management would train people based in districts.

A survey was conducted by CEND to identify the most applied course and with more employment potential. Business Management was the course most voted. It also contributes to train business people based in the remote areas (Dr. Mauleque & Dr. Taju, CEND, and Dr. Nhabinde, FoE)

The key challenges to start and run the course were the need for capacity development in educational technologies and development of self instructional course material. Most of the involved lecturers did not have any previous experience on distance education.

#### Obligatory points of passage

Obligatory point of passage is considered as the route where all actors need to pass to satisfy their interests. For this case, OPP were related to process and technology. As process, it was the
requirement to start by piloting DE in order to build needed capacity and expertise on policies formulation and implement. As technology, it was the use of internet technologies to mitigate the geographical asymmetries in terms of education opportunities, as well as, intensify the use of educational technologies in teaching and learning processes.

...from this first online based experience we believe that we can take lessons to improve our own DE processes and future policy making. (Dr. Franque, INED and Dr. Mauleque, CEND)

**Interessement**

In this second moment we look at actor-network building, how actors seek alliances that share same interests. The Education Strategic Plan (1999 – 2005) triggered the development by recognizing the role of DE in expanding education opportunities throughout the country. The DE strategic plan initiated DE institutionalization process by defining the mandate of INED to coordinate and regulate DE processes and by recognizing the need to build a resource pool on DE practices. INED plays crucial role on training and building awareness as DE is not accredited in terms of implementation capacity. Therefore, INED conducted short and medium term courses. The major training courses were (i) nine-months course to 15 staff members from UEM, UP, A Politécnica, Academia de Ciências Policias (ACIPOL), Monitor International School, Ministry of Public Administration (MAE), Ministry of Health (MISAU) that was delivered by Commonwealth of Learning and South African Institute for Distance education, and (ii) Master of Science in DE undertook by 6 graduates from the nine-months course. A series of courses on planning and management of DE were also conducted to participants from the institutions listed above.

... funds provided by World Bank were crucial to kick-start and implement our vision. We conduct regularly some training on DE processes (pedagogy and management), study material development and education technologies use. We also financed the building of required capacity within DE institutions. (Dr. Franque, INED)

Practitioners’ interessement are related to efforts made by CEND, CIUEM and FoE to convince that the full web based course was the best option and the UEM had capacity to implement the course. People had two sentiments; some supported from the beginning and were confident with the UEM capacity and others considered the project ambitious and with high probabilities of failing.

...to buy-in lecturers that were resistant to participate, we made contracts with lecturers and agreed on allowances to develop self-instructional material. (Dr. Maluleque, CEND and Dr. Nhabinde, FoE)

...we are participating in a regional project called African Virtual Open Initiatives and Resources (AVOIR) to develop open source software (OSS) Learning Management System (LMS) and other collaboration platforms under Chisimba development framework. Participating in this project was important for us as we could get more resources and have a cooperating entity to pilot our products (Dr. Cabral, CIUEM).

CIUEM has used its technology expertise and capacity to assist in selection, development and implementation of DE learning platform.

**Enrolment**

At enrolment a common ground and a network of alliances is produced. The actors identify themselves with the problem solution. The enrolment involves the approval of UEM pilot project by INED and the signature of grant contract. The grant was used to implement the course. Internally, it
was signed an agreement among CEND, CIUEM and FoE to implement the pilot course. Lecturers from FoE were hired to develop self-instructional course material. The INED financial resources helped to crystallize the partnerships with pilot institutions by covering the initial implementation costs.

For implementing the course, CEND started with Chisimba and then changed to AulaNet due to some operational problems. But, UEM continues to develop Chissimba. Chissimba was later agreed to be the future LMS because it is free and can lower implementation costs.

As implementation occurred, new challenges were identified, e.g. problems with lecturers and students who has low skills in using computer and the LMS platform. Most lecturers and students were using for first time these technologies. To mitigate that, CEND have introduced training courses. Special face-to-face courses to teach how to use LMS platform were delivered in provinces to all admitted students.

The requirements for implementing DE courses are higher. Lecturers have to produce and provide all study material in advance and participate in all chats and discussion forums as are the only contact possibilities with the students. (Dr. Maluleque, and Dr. Taju, CEND).

Building awareness was important to commit the policy makers and practitioners to understand the importance to success in the pilot initiatives. INED is now financing a general evaluation to inform both the policy makers and the practitioners.

**Mobilization**

*Resources mobilization.* As project grows, more resources are needed. By institutionalize the process; UEM is now getting funds from University central budget to cover operational cost and from Calouste Gulbenkian Foundation for staff training. At policy level, INED got funds from World Bank to finance a full evaluation of pilot projects.

*Awareness and commitment.* DE still is considered a valid option for expanding education the current Education strategic plan (2006-2010/11). Both INED and UEM claim the ownership of UEM pilot project. This shows the commitment from the policy maker and practitioner to work together for the project success. Lecturers fill engaged and have been updating the study material and participate in discussion forums.

...as time pass, lecturers fill more committed as this is an opportunity to be trained in technology use and also to upgrade their study material based on feedbacks from students (Dr. Nhabinde, FoE and Dr. Taju, CEND).

*Potential influence.* The policy maker is papering a National Workshop to disseminate the current DE regulations approved in 2009 and to share experiences about all DE processes. The FoE has changed the subjects of the exams for admission. In all FoE courses, instead of writing History and Portuguese now they do Mathematics and Portuguese. This was a requirement to make uniform the exams and enable all kind high school graduates to apply. Students increased from 75 in 2008, to 600 in 2010 as result of the promotion activities delivered at provincial levels.

*Capacity building.* Funds provided by INED helped to start DE in a structural way, e.g. formulate policies, design courses, train people, setting technology, etc. Currently, six UEM staffs are enrolled
in PhD program in Universidade de Aveiro, Portugal. They are conducting research on DE and web 2.0 technologies for education. UEM will upgrade, by 2010, its internet connection bandwidth from 20GB to 155GB to serve DE processes and other UEM internet dependent initiatives.

...we still face problems such as students not participating in discussion forums due to low quality and high cost of internet connection. We are now discussing with mobile operators a subsidized internet access package for students in remote districts (Dr. Taju and Dr. Maluleque, CEND).

6. Discussion

6.1 The translation

The description made in results session helps to understand the multiplicity of influences throughout DE policy translation. Pacey and Keough (2003) considers two determinants for policy formulation and implementation (i) the country legislation or strategic plans and (ii) interests of government or nongovernment and advocacy groups. In Mozambique, DE policy process is more institutional based. Its initiation results from 1999-2005’s Education Strategic Plan and 2001’s DE Strategic Plan. These strategic plans have policy goals related to extension of education opportunities and capacity building on DE practices. Here, the policy and policy makers have been the most active actors. At practitioners’ level (UEM) these goals are found in UEM strategic plan (1999-2003) to create CEND to coordinate the DE and support CIUEM to assist the departments in all ICT related issues. Another influence comes from the pressure from high school graduates who wants to access to higher education courses. Today, there are few places and there are geographical disparities. The UEM DE model was influenced by all these factors. These are examples of the moments of problematization and interessement.

DE has specific characteristics, due to students and teachers being not present in same classroom. Therefore, to not compromise education processes, it needs specific means of communication among students and teacher. It requires also efficient policies to regulate, promote and monitor its implementation. The introduction of pilot projects was a good strategy as it developed internal capacity. Developing countries has resources limitations for policy formulation and implementation. This is visible when implementing new concepts, where they relay on donor funding. The pilot projects facilitated the access to funds from the state budget and other institutional partners. The quickening of pilot projects had effects in mobilizing additional funds within their partners’ network. These are examples of the moments of enrolment.

DE developments enlightened new challenges, e.g., lacking of qualified human resources and internet connectivity to support the DE processes. The policy makers have the responsibility in organizing more training courses and providing resources for the development and maintenance of local technologies that are more accessible, easy to use and low cost (e.g. Chissimba platform).

From 2011, INED will develop DE quality and accreditation system based on feedbacks from DE evaluations. Some innovations and partnerships were introduced and are the major drivers for policy process (Pacey & Keough, 2003). Below are listed some examples:

- In addition to the use of AulaNet platform, UEM is now using skype for live interactions among students and lecturers.
• CEND and CIUEM set a research group who is investigating about alternative technologies for education that are free, easy to use and adequate to Mozambican conditions.

• DE institutions are lobbying for alternative state budget funding. They have secured funds from Commonwealth of Learning, Calouste Gulbenkian Foundation, World Bank, etc.

These observed/intended outcomes are examples of moments of mobilization.

6.2 Key challenges

Based on the descriptions of the moments of translation in results section, were identified some challenges involved in policy formulation and implementation. They are reported below.

Planning & management. DE was challenged by lack of integration of DE processes in the existing educational plans. DE institutions had fundraising problems and initiated the projects without a long term planning to support the DE growth. They relayed on grant funds from external partners and each has its own rules/requirements and these have affected the course of the DE implementation. The online DE model (the UEM case) is dependant on technologies. The implementation plan did not include measures to develop/acquire long term technologies. This includes the absence from the beginning of a training plan for lecturers to develop study material and assist online students.

Institutional structures. There are only two regulatory instruments, INED – DE coordination unit – and DE regulations approved in 2009. Most projects were initiated before the approval of the regulations. Therefore DE pilot projects were implemented without following a standardized process. The ICT use in distance education still is not regulated up now and also there are no DE quality measures and accreditation mechanisms complained with the country development plans. Also, there is not a forum were the pilot project institutions share their leanings in DE design and implementation process.

Resources. Funds were available to initiate the projects. But at long run were verified that DE institutions were lacking of technology infrastructure and sufficient capable human resources. Major challenges infrastructures identified were low internet bandwidth, frequent internet cut-downs, lacking of dedicated hosting servers for the LMS, and high internet connectivity prices. At human resources were identified as challenges the lacking of dedicated ICT experts at CIUEM to develop and maintain interoperable 24/7 the operational of LMS. Also the lecturers and students have difficulties in using computers and the leaning platform.

6.3 Suggestions to overcome the challenges

Planning & Management. DE is new and more current when it is web based. Therefore, people tend to be sceptics to attend it. So, it is a crucial to conduct a well planning and set good management structures. Starting by setting the vision, mobilize resources for the long run and then pioneer to drive the implementation process including policy measures.

Institutional Structures. Process institutionalization is a crucial measure to align DE with the Government development priorities and get access to institutional resources. Having the resources to pilot DE could support the knowledge and actors commitment building from the experience. The institutionalization should be autonomous to keep the accountability and openness to innovate.
Government has a role to set DE quality measures and accreditation mechanisms. Also should be set a forum for lessons learning sharing among the pilot projects.

**Resources.** The Government commitment results on triggering processes and sponsoring policy formulation and implementation. Being DE an immature process, there is need of building a resource pool of expertise on pedagogy practices and technology use and development. Apart from development of human resources it is important to create dedicated ICT infrastructure for DE.

7. Conclusion

The study looked at first exploring who influenced the DE policy process and how. The actors were identified and listed in section 5.1. The DE policy process was started with development of DE implementation strategy in 2001 to respond to the 1999’s Education Strategic Plan. This has enabled institutionalization of DE initiatives. The key milestones identified were the creation of the INED in 2001, the development and initiation of four DE pilot projects all financed by CEND from 2006-2007, and government approval of DE regulations in 2009. This confirms that policy goals are defined by the top management. UEM DE course was one of the pilot project which had a specific of being the first fully online based.

The study also looked at identifying the challenges and proposing suggestions to overcome them. The promotion and regulation of DE sector, is in an infant stage. Some of challenges indentified where related to low skills on DE process and technology use, and low quality technology services. The Strategic Education Plans and INED had a crucial role in promoting a shared vision about DE implementation. This would contribute to build commitment over time and have flagship cases to mobilize more resources. Pilot projects financed by government contributed on building the required expertise and infrastructure as initial investments. But, the DE growth is affected by the absence of long term resources support plan.

**Limitations**

A more detailed study is required to identify the contribution of UEM online course on policy formulation in relation to ICT intensive use. At this stage, it was difficult to see the impact of practitioners’ activity in policy formulation, as the implementation started recently (2008) and a general evaluation is still in the process.
References


Annex 1: List of interviewed people

1. Dr. António D. Franque, General Director, INED (National Institute for Distance Education)
2. Dr. Lurdes P. M. Nakala, Accreditation and Training Department, INED (National Institute for Distance Education)
3. Dr. Gulamo Taju, Director, CEND (Centre for Distance Education)
4. Dr. Castelo Maluleque, Head of Tutoring and Evaluation Department, CEND (Centre for Distance Education)
5. Eng. Francisco Mabila, Director, CIUEM (Informatics Centre of Universidade Eduardo Mondlane)
6. Dr. Neves Cabral, Head of Information, Services and Content Development Department, CIUEM (Informatics Centre of Universidade Eduardo Mondlane)
7. Dr. Simeão Nhabinde, Online Business Management Course Manager, Faculty of Economy, Universidade Eduardo Mondlane
Annex 2: List of consulted documents

3. Distance Education strategic plan approved by the Government of Mozambique in 2001
4. Distance Education Regulations (Regulamento do Ensino à Distância) approved in 2009
6. Papers about Distance Education in Mozambican
Annex 2: Interview guide

This is a guide for a semi-structured interview covering the topics related to distance education policy design and implementation in Mozambique. The interview is part of a research study to pursue a final Master’s Thesis in Electronic Government at Örebro University, Sweden. The aim of the study is to explore the transformational issues of the socio-technical actors (policy makers, partners, practitioners, technology, etc) on designing and implementing the Mozambique’s distance education policy. The research will target INED & Ministry of Education (policy makers); CEND, Faculty of Economy & CIUEM (practitioners). The results of this study shall only be used for academic purposes.

A set of questions is presented below, according to the target group. The interviews will take between 40-50 minutes each. Based on the interviews responses more explorative questions not listed below could be added to better understand the issues raised.

For collection of the interviews will be used handwritten notes and audio recording. The audio recording will be subject to authorization of the interviews.

**Target 1: National Institute for Distance Education (INED)**

1. What are/were the major challenges for education in Mozambique? And what role distance education could play in address them?

2. What are the goals and objectives of the distance education policy in Mozambique?

3. What issues triggered and molded the development of distance education policy?

4. What role played the past experiences on distance education on the policy process?

5. Was the technology potential and concerns been taking into account in the policy making and implementation? To what extent and to which purposes would it fit?

6. Why it was created a new institution (INED) to lead the issues related to distance education?

7. What is the mandate and boundaries of INED?

8. Who are the INED partners and what are their roles?

9. What resources (human, technological and financial) are available for the implementation? And who is responsible for the planning and management of those resources?

10. What are the specific routines, specific interactions, processes involved in the policy implementation process?

11. Who are the partners involved in the implementation?

12. Are there any constraints that may impede the INED from contributing towards the development and subsequent implementation of the distance education policy? What are these constraints?
13. What are the strategies INED adopted to overcome these challenges? If not yet developed, what are the ideas for the near future?

14. Were the outputs from the development process as planned? If not what new outputs were observed? Why that deviation has happened?

**Target 2: Centre for Distance Education (CEND)**

1. What issues triggered and molded the development of the distance education course at UEM?

2. Which policy issue were/are relevant to the development of the e-learning program? Or what opportunities does the current policy bring to UEM as an education institution?

3. Why it was selected the Faculty of Economy as the first department to deliver the e-learning course? And why it was selected business management as the pilot course?

4. What was the process involved in the planning and design of the course? What are the specific routines, specific interactions, processes involved in the course implementation process?

5. Who were/are the partners involved in the course design and implementation process? And what were/are their roles?

6. Who participated in the selection of the technology? What criteria were used for the selection?

7. What problems have emerged from the use of the selected technologies? And what were the approaches used to remediate?

8. What was the cost of implementation of the e-learning course? And who were the major financiers? What pre-conditions did they ask for?

9. What resources (human, technological and financial) are available for the implementation? And who is responsible for the planning and management of those resources?

10. Are there any constraints that may impede the CEND from contributing towards the development and subsequent implementation of the e-learning program? What are these constraints?

11. What are the strategies CEND adopted or planed for the near future to overcome these challenges?

12. Were the outputs from the development process as planned? If not what new outputs were observed? Why that deviation has happened?

**Target 3: Faculty of Economy**

1. What issues triggered and molded the development of the distance education course at UEM and specifically at Faculty of Economy?

2. Which policy issue were/are relevant to the development of the e-learning program? Or what opportunities does the current policy bring to UEM as an education institution?
3. Why it was selected Faculty of Economy as the first department to deliver the e-learning course? And why it was selected business management as a starting course and not any other?

4. What was the process involved in the planning and design of the course? What are the specific routines, specific interactions, processes involved in the course delivery process?

5. Who participated in the selection of the technology? What criteria were used for the selection?

6. What problems have emerged from the use of the selected technologies? And what were the approaches used to remediate?

7. Being an online based system, were issues related to privacy and security taken into account?

8. Are there any constraints that may slow down the Faculty of Economy from implementing the current e-learning program? What are these constraints?

9. What strategies the Faculty of Economy have adopted or have planed for the near future to overcome these challenges

10. What roles do the lecturers and students have on the course maintenance?

11. What resources (human, technological and financial) are available for the implementation? And who is responsible for the planning and management of those resources?

12. Were the outputs from the development process as planned? If not what new outputs were observed? Why that deviation has happened?

Target 4: Computer Centre of Universidade Eduardo Mondlane (CIUEM)

1. How CIUEM got involved in the development of the e-learning course? What role did the centre play? And what role is currently playing?

2. What opportunities does the pilot e-learning course at UEM represent for CIUEM as technology developer?

3. What opportunities does the new distance education policy represent for CIUEM as a technology developer?

4. What role CIUEM would have in influencing the distance education policy process?

5. What role CIUEM would have in influencing the distance education implementation?

6. Are there any constraints that may impede the CIUEM from contributing towards the technology development and subsequent implementation of the e-learning system? What are these constraints?

7. What strategies CIUEM have been adopted or are planed for the near future to overcome these challenges
8. What was the process involved in the planning and design of the technology? What are the specific routines, specific interactions, processes involved in the technology development process?

9. Who were/are the partners involved in the technology development process? And what were/are their roles?

10. What resources (human, technological and financial) are available for the implementation? And who is responsible for the planning and management of those resources?

11. What goals/objectives were set within the partnership to develop the e-learning system?

12. What partners were involved in the development of the e-learning system? And what were their roles?

13. Were the outputs from the development process emerged as planned? If not what new outputs were observed? Why that deviation has happened?