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Organizations' views of development and their effects on education in Paraguay as a developing country.
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Education is often identified as a cornerstone of the development process (UNESCO 2013; United Nations General Assembly 1948). However, education is not a static concept with static content that can be applied as-is everywhere expecting it to produce the same results for all. Education may vary according to place, experiences with paradigms, overall economic development, who is allowed in the decision-making process, and their views of development and how it may be achieved. These questions are explored in the context of Paraguay as a developing country. The following section is a concise literature review, which leads to the main questions of the study.

What is Development?

More commonly, development is understood as self-sustained economic growth(Akpan 2003; Brundtland 1987; Edwards Schachter 2003; Jackson 2009). Another view of development consists in reaching the same level of distribution and use of the same technologies in developing as in developed countries(Akpan 2003). Others view development as the increase in human capital, which allows greater local knowledge generation and self-determination (Cecchini and Scott 2003; Menkhoff, Evers, and Chay 2005). Development can also be understood as the enhancement of human freedoms, as is the view of Sen (Andersson, Grönlund, and Wicander 2012; Walsham and Sahay 2006). Others extend Sens' notion of human freedom to groups of interested or affected individuals, pointing out that, especially in developing countries, individuals alone do not have enough bargaining power and need to form collectivities to achieve goals(Thapa, Sein, and Sæbø 2012).

No matter what view of development is espoused, they all rely on data, information, and knowledge to reach the desired level of development, constituting what is called the information society and later the knowledge society(Papoutsakis and Vallès 2006; Sörlin and Vessuri 2011). According to Conceiçao et al, “the creation, distribution, and use of knowledge is increasingly important for development at the individual, organizational, national, regional, and global levels”(1998:181). However, a crucial fact must be factored into the discussion: most data, information, and technology originates in developed countries and is exported to developing ones. In this regard, several studies and discussion papers agree that developing countries need to form their own contextualized applications of technologies and knowledge developed elsewhere (Byrne and Jolliffe 2007; Chhabra and Rahman 2011; Greenidge and Engelhard 2002:12; Menkhoff et al. 2005).

However, using data as information and transforming it into knowledge that allows the aforementioned local contextualization requires proper education. It is education that defines if and how local and foreign information and knowledge are to be engaged (Madon 2000). Zeleny offers a categorization of 'knowledge' where data, information, knowledge, and wisdom replace the more commonly used explicit, implicit, and tacit knowledge. In Zeleny's categorization, data represents “elements with unclear purpose”, information is the “symbolic representation of action”, and knowledge is the performance of an action. Regarding levels of knowing, Zeleny states that data represents the “know-nothing”, information represents the know-how, knowledge is the know-what, and the final level of cognition is wisdom, the “know-why”, which requires a specific purpose for action (Menkhoff et al. 2005). Implicit in this definition is the need for an education that allows individuals to use data to inform themselves, and act according to specific purposes.

Knowledge and Globalization

One of the prerequisites for good education is access to information. Access to information can only be gained by networking with the producers of knowledge, as in Castells' view of the Knowledge Society (Castells and Cardoso 2006), which is closely linked to globalization. Harding et al. indicate

that globalization should be understood as a "multifaceted set of processes involving unprecedented acceleration in the international circulation of people, goods, services, money, images and ideas" (Harding et al. 2007). However, while there may be an increase in international flows or information, organizations are still embedded in local settings where they work, which fund them, and to who they must remain relevant. According to Levin, the most important question is "how new ideas, concepts, and tools that are acquired from the outside are rooted in the local environment" (Harding et al. 2007). This leads to the realization that globalization processes require local adaptations, considering that local populations would know better how to comply with global requirements from their standpoint (Menkhoff et al. 2005; Nederveen Pieterse 2009).

According to Castells, globalization itself is not new; the novelty in our time is rather the technology-driven networking capability that allows individuals and organizations to harness information and knowledge beyond the physical limits of their offices, regions or countries. In this view, proper use of technology allows societies to benefit from foreign and local knowledge to develop further (Castells and Cardoso 2006). Evers et al. are of the opinion that, while there is technology that allows distant communication and acquisition of information, it is the physical clustering of organizations and their sharing of locally-relevant information that leads to development. The clustering and local information sharing, however, depend on proper education and its ability to generate 'Science and Technology for Development' and to include as much of its population in these as possible (Menkhoff et al. 2005). In short, while it is necessary to exchange information to develop, and the rate and relevance of exchanges is increasing, local capacity building remains equally important. Local capacity building would shape Zeleny's categorization of know-what and know-why.

Local Connections

Local contextualization requires that developing countries have unified internal frameworks and policy perspectives that allow them to work on foreign data, information, and technology and adapt it to their needs (Conceição et al. 1998). Among the required frameworks one could count those discussed by Byrne and Jolliffe (2007), and Evers and Gerke (2004), relating to so-called intellectual property and TRIPS, which have tangible impacts on developing countries' abilities to contextualize technology and education. Greenidge and Engelhard explain that "...improving the technological vitality of developing countries is a multi-faceted task that requires nothing less than a transformation of the these countries' 'fabric of S&T for development"(Greenidge and Engelhard 2002:12). This would require coordination among governmental projects and authorities as well as between private and non-governmental authorities to transmit to citizens the "importance of the production, distribution, and usage of knowledge for growth and development"(Conceição et al. 1998:18). The same author also points out that the norm seems to be that countries have separate policies for research, education, trade, etc. embodied in different organizations. This, coupled with limited resources and probably past experiences with changing paradigms in several areas of development, would result in a lack of the required coherence that is expected to lead to development.

Tettey(2000), in his critique of positivist views of technology transfer and adoption, states that this view perceives organizations as "institutions in which everybody understands, agrees with, and pursues a unanimously defined trajectory toward the achievement of a singular goal". This can be extrapolated to an entire country on the development discussion, where it cannot be expected that all organizations will share the same idea of development and how to achieve it. What is more, not all organizations that influence the development process of a country identify themselves as "development organizations". Moreover, while organizations may work on seemingly disconnected and independent

areas of development, they may influence other areas directly or indirectly. Therefore, development should not be seen as a unified and uniform process with which all organizations agree. This is no less relevant when discussing education, an area influenced by several stakeholders: government and governmental regulations, non-governmental interest groups, private sector requirements, and social and individual expectations. As Walsham et al put it, critical work regarding institutional arrangements "can open up the black box of accepted ways of doing things as an aid to deeper understanding"(2007).

Research Approach and Scope

The context presented above presents several sides to development: on the one hand different local actors may have different concepts of what constitutes development and how that development can be achieved, on the other hand developing countries need to have their own all-encompassing internal framework to direct their development efforts. The other hurdle for developing countries is how to balance their existence as members of the globalized world and its requirements, and how put in motion internal development processes that may have different requirements.

Returning to the initial premise that education is the cornerstone of development, the literature review above prompts the following questions:

(a) What are the most prominent organizations shaping education in Paraguay?
(b) What do the different organizations understand by 'development'?
(c) What do these organizations expect from education to achieve their visions of development?
(d) How do organizations view their own role in achieving development, and how do they see the role of other organizations?
(e) Is there an overarching agreement on the definition of development and how to achieve it across organizations and documentations?
(f) What are the views of the population regarding development and education, as represented by students' opinions?

Methods

The main objective of the research is to elucidate Paraguay's internal development processes as understood and carried out by stakeholders working directly on education, and other stakeholders that may influence education. The methodology applied is Stakeholder Analysis, following the definitions used by the International Development Research Center. According to the IDRC, stakeholders refers "to groups and organizations that have an interest or are active players in a system". Stakeholder analysis "refers to a range of tools for the identification and description of stakeholders on the basis of their attributes, interrelationships, and interests related to a given issue or resource"(International Development Research Centre (Canada) and World Bank Institute 1999). As they explain, one of the main reasons to use stakeholder analysis is to "empirically discover patterns of interaction".

Stakeholder analysis consists of the following steps :

(a) Identify the main purpose of the analysis (stated in the paragraph above);
(b) Develop an understanding of the system and decision-makers in the system;
(c) Identify principal stakeholders
(d) Investigate stakeholder interests, characteristics, and circumstances
(e) Identify patterns and contexts of interaction between stakeholders; and
(f) Define options for management

Point (b) is built from an extensive literature review. Point (c), selecting the principal stakeholders, has been done thanks to being familiar with the context of study. Point (d), investigating the stakeholder interests, characteristics, and circumstances, will be done in three parts: 1. document analysis which will yield preliminary results, 2. a first round of interviews with the representatives from the organizations will provide a comparison frame to the document analysis and possibly additional interview candidates as mentioned by the interviewees, 3. a second round of interviews will aim to clarify remaining questions. The contrast between document analysis and interviews will serve to fulfill point (e). Additionally, focus group-based research with students in their final year of higher education will be conducted on the results of the interviews and documents analysis.

The institutions being analyzed were chosen because of their relevance to the area of study: "Paraguay Educa" is Paraguay's first and most important education NGO with a 7 year history of implementing digital education in the One Laptop per Child framework; the Ministry of Education is the governmental agency in charge of developing the curriculum for basic and middle education; the National University of Asuncion is Paraguay's oldest, largest, and most influential university with an extensive social outreach program; and the Industrial Union brings together all major local entrepreneurs.

Analytical Framework

The study is interpretivist, based on three theories.

Evers' theory of the Epistemic Landscape is based on the analysis of development policies in South-east Asia and comparisons with developed countries, which presented evidence that clustering, knowledge sharing, and a communication infrastructure are key aspects of strong, knowledge producing developed countries. The Epistemic Landscape consists of independent organizations such as universities and firms that use and produce knowledge, which are called hubs; hubs located physically close and with ties to each other form regional clusters; the different regional hubs in a country form an Epistemic Landscape. He defined this arrangement as "a wider structure of knowledge production and dissemination" (Evers 2008).

Castells' theory of the Network Society, which presents the characteristics of societies embedded in ICT ubiquity and how this changes the relations between individuals, organizations, and governments. In Castells' view, the realization of organizations that "practical needs drive the development of cooperative efforts among new constellations of actors" has changed the way policy is developed now: together with stakeholders.

The third body of work on which the research is based is "The New Production of Knowledge" and Mode 2 Knowledge Production proposed by Gibbons et al. Mode 2 Knowledge Production addresses the changes that have taken place in higher education, society, government, and the private sector and how this affects problem identification, research processes, dissemination of results. In this new mode of knowledge production, disciplinarity gives way to transdisciplinary research, which consists in developing knowledge together with other disciplines and with practitioners in the place of application, increasing the applicability of the research.

Together, these theories present a landscape of high national and international interconnectivity which enables greater 'global' integration but also requires greater independence and self-determination, while presenting specific requirements for development under these conditions.

The following chart summarizes the main points of the three theories as they are applied in the research:

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	Epistemic Landscape	**Network Society**	**Research Mode 2**
Education and Skills	- Communication of problems - Focus on research and problem-solving - Training of students and non-students	- Emphasis on learning, unlearning, relearning. - Education Policy is central to everything	- Most important skills: problem identification, knowledge reconfiguration, problem-solving - Positive attitude to Science & Tehnology - Learning to learn - Transdisciplinarity
Inter-organizational cooperation	- Higher Education works with other organization to produce, develop, and share knowledge - Epistemic and knowledge differences are basic requirements for knowledge exchange	- Knowledge uncertainty requires cooperation - Stakeholders share problem definitions, agree on common problem-solving paths	- Social accountability requires HE work with stakeholders - Epistemic differences contribute to variety in viewpoints
Role of the State	- State plays a key role in developing shared ICT infrastructure	- Public sector should shape and guide the standards of the Network Society	- Expand S&T to prepare population for rapid changes - Develop ICT infrastructure - Build HE institutions
Decision-making between public and private organizations.	- Shared, all stakeholders involved in decision-making - Knowledge exchange among organization is the basis for decision-making	- Shared, stakeholders form interest groups to promote their positions - Diff. stakeholders understand and frame situations differently - Differences in language may lead to difference in objectives - Trust must be developed	- Shared, graduates working in non-academic organizations provide expert knowledge in decision-making - Permeability, opening the decision-making process to stakeholders is key - Non hierarchical communication
Information and Communication Technologies Infrastructure	- Expertise in ICT use is a basic necessity - Effects of organizations' internal ICT regimes on knowledge production and sharing is unknown in ICT infrastructure	- Appropriation and mass usage are key to developing a knowledge society - Free vs Closed technology is a decisive issue	- ICTs are at the center of knowledge production - It is the role of the state to develop the basic ICT infrastructure

Table 1: Summary of the theoretical framework

These three theories provide a framework of what would be expected from a developing country to address its underdevelopment with an organized and coherent policy portfolio. However, these will not be tested in the field, but rather serve to guide the document analysis and interviews. It may well be the case that none of these apply to the Paraguayan case, but these will serve as a reference framework.

The research would fill an important gap in development planning, given that the educational implications of the views of development held by the different institutions to be analyzed remain mostly unexplored, yet have the opportunity to affect the content and quality of education. The research will map the stakeholders' interactions, portfolio differences and similarities, and the perceptions of each other. The resulting map would show the actors' roles as stakeholders in education and development, as well as the path and shape of Paraguay's development plans as constructed by different actors.

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