

DIGITIZATION OF THE ACADEMIC LIBRARY IN BRAZIL: A PROPOSED
ADVOCACY MODEL FOR SUCCESSFUL FORMULATION OF INFORMATION
LEGISLATION AND POLICY IN DEVELOPING COUNTRIES

By

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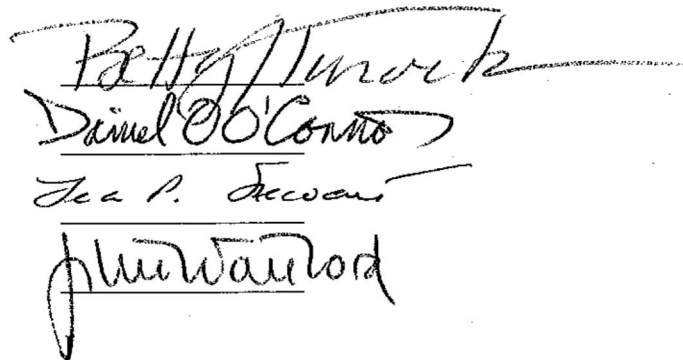
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ABSTRACT OF THE DISSERTATION
Digitization of the Academic Library in Brazil:
A Proposed Advocacy Model for Successful Formulation of Legislation and Policy in
Developing Countries

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This research explored issues in the digitization of Brazilian academic libraries during the period after the Internet opening and explosion of 1995 (Albernaz, 2003). Its purpose is to construct an exploratory case study of Brazil, considered the best case scenario, to suggest an academic library digitization model based on successful information policy-making as perceived through the lens of the Advocacy Coalition Framework theory. Three major pillars of the Brazilian case were studied: government agency officials, academic library leaders, and professional library association leaders.

Through surveys, interviews and a review of documents relevant to information policy, data were collected and analyzed using descriptive quantitative techniques and the qualitative technique of pattern matching to derive a model applicable to the less affluent countries of the world.

The essential elements for a successful advocacy campaign were determined. Fourteen categories were uncovered: lobbying, both group and individual; education, from professional development to training for skill in handling the online, digital environment; increased financial support, particularly from the federal government;

support for the fundamental professional precept of equity of access; the improvement of practice through digitization; the involvement of the private sector and professions outside librarianship to help ensure increased influence with Congress; leadership in the national and international promotion of digitization; cooperation and partnerships that activate coalitions and alliances; improved management of digital resources, with a focus on strategic planning; promotion of research, policy and legislation, along with the broad scale diffusion of innovative projects that advance digitization; enhanced awareness of existing models and their emulation at the local, state and regional levels; societal pressures to remain competitive and the need it brings for modernization; the relationship between the current global economy and the role of digitization in helping continue national economic growth; the importance of adding new groups to the advocacy base, particularly new library professionals and library educators.

Findings support a model that improves and develops further academic library digitization through extensive use of advocacy and dialog on the part of all actors. Future research is needed to determine whether this model has general usefulness and transferability to developing countries outside Brazil.

Dedications

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Chapter I. Conceptual Overview and Theoretical Underpinnings

As the world grapples with the unrelenting progress of electronic technology, especially in its application to information, the United States with its affluence, technological resources and capabilities is frequently held up as a model for the rest of the world in the information policy and academic digitization that the nation has developed. But the Digital Divide propelled by these electronic advances makes the United States a model that cannot be emulated in most parts of the globe.

In South America this is particularly true. Economies are weak in many nations. Yet the need for the people to have access to electronic information is just as great as it is in the United States and in other more economically stable parts of the world. This study proposes to build an advocacy model for the formulation of information policy that enhances access for the people of less economically advanced countries based on the theoretical approach of the Advocacy Coalition Framework, advanced by Paul Sabatier and Hank Jenkins-Smith (1999) and complemented by Peter Burger's theories for the investigation of international information policy issues (1993). A descriptive case study of Brazilian academic libraries is the locus for this research.

Conceptual Overview

The relationship between government support and digital development is discussed in many areas of international library literature (Bound, 2006). This research investigates that relationship. There is some evidence indicating that appropriate and consistent government policies are seminal to the growth of the academic information

sector in a nation (Unesco, 2001). University libraries, in turn, play an important part in supporting and promoting high quality research, as demonstrated in the case of the developing nation of India (Cholin, 2005) and Brazil (De Meis, 2004). There is also evidence that investment in knowledge and information and communication technologies (ICT) plays an important role in the socio-economic rise of a nation (Tripathi, 2006) (Camara & Fonseca, 2007). The discussion around ICT's role in the economic development of nations is still controversial (Shih et al., 2007) (Patterson & Wilson 2000) (Kim, 2007). Gani (2006), however, suggests that developing countries should look at the implementation of ICT's to increase their economic development. Phelps (2000) argues for the important role of education in development. Higher levels of education seem to reduce unemployment in nations. This exploratory descriptive case study examines one developing country, Brazil, in which government policies, academic libraries and the creation of digital knowledge have become vital factors in the process of promoting economic and social development.

This type of study was deemed necessary because of the dearth of research on library digitization in developing countries that emphasize the connection between the global economy, an adequate online information infrastructure, and development (Hawkins & Hawkins, 2003). Academic libraries with strong digital resources in turn play an important role here as facilitators of research and disseminators of knowledge for the nation: they can gather, process, and disseminate wider amounts of information in a more efficient way. (Alemneh & Hastings, 2006) (Marcondes et al., 2006). Research for this thesis investigated the specific case of Brazil and questioned whether advocacy existed among academic library leaders, government agency officials, and professional

library association leaders in Brazil that influenced the development of electronic information policy favorable to academic library digitization. It focused on identifying, analyzing, and discussing the role of the main actors in this process as they were affected by awareness and advocacy. Here actors are defined as participants in the process of advocacy for the development of electronic information policy favorable to academic library digitization (See Table 1). Advocacy is discussed multiple times in the literature and is defined for this research as “the act or process of supporting a cause or proposal” (See Table 1). (Alire, 2005).

Brazil was chosen as the site for this study because there is evidence that it represents an advanced state of advocacy among the major entities involved in the provision of electronic information services in general (Wilson III, 2004). As

Table 1. Table of Definitions

Term	Definition
Academic online information	The flow of information to and from academic libraries in Brazil using electronic media devices and computers.
Actors	Advocates for the development of electronic information policy favorable to academic library digitization.
Advocacy	The act or process of supporting a cause or proposal, including overt action taken in support or rejection of legislation and information policy.
Awareness	Broad based professional knowledge of legislation and policy relevant to the digitization of academic libraries.
Best case	A scenario technique intended to uncover a high number of factors influential, for this particular case, in the success of academic library digitization.
Case Study	A form of qualitative research used to comprehensively describe an institution, process, or program within its context. One form of it is the exploratory case study intended to define questions and hypothesis for future investigations. (Krathwohl, 1993, p. 347; Yin, 1993, p. 5).
Coalitions	The short-term union of individual groups for the purpose of promoting or defeating policy or legislation.
Government intervention	Policy and/or legislative action taken by decision makers that positively affects the digitization of academic libraries.
Lobbying	The process of persuading one to act on one's behalf on a particular issue. (Meraz, 2002, p. 64).
Triangulation	"The consistency of evidence gathered from different sources of data across time, space, persons, by different investigators or different research methods" (Krathwohl, 1997, p. 694).

Wilson III indicates regarding the Internet development:

At the start of the Brazilian information revolution, when the initial key institutional and physical infrastructures were being constructed, the motive force for innovation was a small group of information activists based in and around government units and ministries (Wilson III, 2004, p. 164).

What initially started as “ a gang of four advocates for the Internet, one of them a university professor, turned later into a field for entrepreneurs, government, and educational institutions among others “ (Wilson III, 2004). For example, the Information Society Program (ISP), launched in 1999, was a joint effort by the government, information researchers, entrepreneurs, and librarians and their leaders to assess, design, and promote Internet and electronic information policies for Brazil and to build coalitions to further the end of digitization. The ISP is responsible for the publication of long term plans for information policy for digital development in Brazil, such as the Green Book on the Internet. This document presents a wide arrange of Internet policies, goals, and objectives that have never been discussed at that level in the South American region. By itself, this document represents a very advanced state of planning for Internet policies that needs to be emulated elsewhere in developing nations.

This research centers on the premise that Brazil represents a best-case scenario in Latin America for the advancement of digitization in academic libraries. The best-case scenario is defined here as one in which a high number of elements congruent with successful digitization of academic libraries are present. Literature on the topic (Leta et al., 2006) suggests that Brazil is a best case because it possesses an advanced level of digitization in some of its major regions due to the quality of its academic institutions. Most science and technology research is carried out by universities (De Meis et a., 2004), but as in other nations in the South American region, educational disparities among higher education institutions are visible (Leta et al., 2006). Other arguments for

considering Brazil a best-case scenario arises from the private and public investment in digitization in academic libraries, and the exponential growth of the telecommunications sector (Loural, 2005) (Mattos, 2005). A third factor is the growing interest and understanding of the government and citizens about the importance of scientific research for development (Kuramoto, 2006) (Marciano, 2006) (Valentim, 2002). A fourth factor is the advances made in the area of academic digitization due to the development of the high speed Brazilian Academic Internet under the aegis of the National Network of Teaching and Research (RNP). As the World Economic Forum indicates, Brazil also has one of the most rapidly growing higher education systems in the Latin American region:

“Brazil has the best and also the more complete Latin American network of graduate courses both at the university and post-university levels, and is among the best in the Southern Hemisphere.” (World Economic Forum, p.14)

The growth however is not free of challenges. One of the most commonly cited is the challenge that the higher education system is not prepared to fulfill the demands in terms of infrastructural needs such as buildings, libraries, classrooms, etc. Again, this is a concern shared by other nations in the South American region.

Latest rating data from the Brazilian Institute of Public Opinion and Statistics (IBOPE/Net 2004), a leading Brazilian and world public opinion agency, suggests that one out of five Brazilian adults have already used the Internet (<http://www.ibope.com.br>). This means that approximately 28 million Brazilian older than 16 years have already accessed the Internet at least one time. Brazil is the leader IT nation in Latin America. The World Economic forum puts Brazil at number 11th in sophistication and online transaction done by central government entities (The Economist, 2007). One hundred million people used e-voting in 2004 and ninety-seven percent of tax declarations are

done via the Internet (Medeiros, 2005). Even more relevant for this research is the fact that Brazil is the world leader of Internet use in terms of University websites, higher than both France and Australia, with academic universities such as the University of Sao Paulo (USP), the National University of Brasilia (UNB) and the University of Campinas (UNICAMP) leading Internet access during the first three months of 2004 (IBOPE/Net, 2004).

An assumption for this work is that it would serve as a best case to uncover factors that lead to a model for the advancement of digitization in other developing Latin American countries. Taken together, the factors presented here make Brazil a best-case scenario for the exploration of advocacy and its role in the enactment of information policy.

This research explored the existence of advocacy among government agency officials, academic library and professional library association leaders, and government information legislation and policymakers in enhancing the growth and development of electronic information through the enactment of favorable information policy. To conduct this exploration these main actors were studied by surveying and interviewing and conducting a document review of information policy—an example of triangulation of data.

The model proposed here resulted from the systematic identification of major elements of advocacy and their organization into discrete categories as points of action for the future in other South American countries. The goals of this design were also to describe the elements located; organize them under major categories; and propose a model for the future incorporating the elements and categories.

This research has significant implications for two particular areas of librarianship. The first is demonstrating the importance of establishing adequate information policies for developing nations regarding the digitization of academic libraries. Second, this study attends to the importance of continuous advocacy in the communication, dialogue, and negotiation between the library community and the national government. Brazilian academic researchers are aware of these times of change in the academic librarianship of their country due to the growth of electronic information resources and digitization. Use of online resources and communication within the sphere of the Brazilian academic library are now common. Umpierre (2006) suggests that for the most part the automation systems of Brazilian academic libraries are efficient and dynamic (Umpierre et al., 2006, p.149). However, there is also agreement on the need to continuously improve for the future. Da Cunha (2000) and Fujita (2007) have discussed the potential dramatic changes that the Brazilian academic library is facing due to digital advances, particularly the need to improve the conditions of access for digital information. They also agree on the fact that the Brazilian academic library is in most cases recognized seminal element in the production of knowledge and scientific information. Research in the area of academic virtual libraries and use of Internet resources, for instance, (Rebel Gomes, 2004) suggests that Brazilian academic researchers are cognizant of the realities and potentialities of Internet information resources. Gomes (2004) suggests that the Brazilian research community is in touch with modern areas of expansion like the creation and design of virtual libraries. That is, the library and information science field is in close contact with cutting edge developments throughout the world that are in the forefront of importance for the future growth of librarianship. The awareness of electronic resource capabilities is

high on the part of researchers due to government legislation. One example of this is PROSSIGA, an information program for the promotion of Science, Technology and Innovation established under the sponsorship of the Brazilian Institute of Information for Science and Technology (IBICT). Both IBICT and PROSSIGA are under the domain of the Brazilian Ministry of Science and Technology. PROSSIGA is an important Brazilian government program in information and Internet development which attempts to promote awareness, development and research in this area.

Other studies in information seeking behavior indicate the strong interest of the Brazilian scientific and technological community in electronic resources (Ribeiro Pinheiro, 2003). In addition, the Brazilian scientific and technological communities perceive electronic resources as a way of overcoming the tremendous expanse of Brazil as a country. That is, since Brazil is the largest nation in South America and one of the biggest in the world, its geography and its variety make communication and traveling difficult and costly, while the speed and ubiquitous nature of Brazil's electronic resources act as agents in overcoming both.

In essence, there seems to be a clear perception on the part of university and association managers, librarians, professors and scholars that the academic Brazilian library environment is living in a new era and that digitization in the context of the new information society is playing one of the major roles in the change (Russo, 2004). In addition, librarians at various stages, particularly in the academic environment, are increasingly recognizing the value and power of the digital information for their daily work (Morigi & Pavan, 2004).

Theoretical Underpinnings

The theoretical components of this research arise from two approaches: the first one is the work of Paul Sabatier and Hank Jenkins-Smith (1999) on the Advocacy Coalition Framework (ACF) is considered one of the most important theories in policy analysis. The second one is the theory advanced by Peter Burger (1993) that concentrated on providing a framework for the study of information policy issues in the international arena, provided the underpinnings for this research.

Sabatier and Jenkins-Smith.

The ACF theory, as first developed in the early 1980s, has turned into one of the most successful theoretical frameworks to examine advocacy and the existence of coalitions in public policy. The ACF is a premier tool for the examination of public policy such as U.S energy policy, Environmental Policy at Lake Tahoe, U.S telecommunications regulation, Forestry policy in British Columbia and Environmental Policy in Poland to cite some of the many available examples (Sabatier & Jenkins-Smith, 1999).

This framework was useful for the current study because it suggested multiple ways to address the relationship between policy implementation and technical information in public policy change over a relatively long period of time (Sabatier, p.118). A substantial amount of time and effort have been focused on the discussion and implementation of electronic information policies at various levels in Brazil. This research examined one period of time, beginning after 1995 and ending in 2004 when the Brazilian information sector was strongly affected by growth of the Internet and its progressive development throughout the country.

Sabatier and Jenkins-Smith's theory emphasizes the role of advocacy in the formulation and passage of information policies applicable to developing countries. Their framework provides the basis for explaining policy change as the result of government agency officials, academic library leaders and library association leaders, that is, various actors both as individuals and as members of a group, exercising advocacy at different levels. The ACF distinguishes between government agency representatives who have influence on academic library development, funding and legislation and policymakers within the Brazilian Congress. Furthermore, the advocacy coalition framework takes into account the international dimensions of policy and its repercussions on nations outside the one in which it is enacted (Sabatier, p. 119), that is, the effect that policy actions of one nation have on other nations. Perhaps the most appealing feature of this theory is as Sabatier (1999) suggests:

The ACF.... encourages us to think of government agency officials and researchers as potential members of advocacy coalitions—as having policy beliefs very similar to those of interest group leaders and their legislative allies, and as engaging in some nontrivial degree of coordinated activity in pursuit of their common objectives. (p. 127)

This powerful trait of the ACF illuminates its relevance to the examination of the Brazilian academic library's digital environment, since this research attempted to identify the actors and elements that lead to successful collaboration in a digitization model. This research was also interested in how the activities of various groups in the information sector in Brazil were coordinated for action. Using the advocacy coalition theory these three groups—government agency officials, academic library leaders, including researchers who produce and advise on policy, and library association leaders—are analyzed as advocacy entities who are involved with each other and other groups that

have direct influence on the enactment of legislation and information policy. According to this theory, most actors are also advocacy players, which is the premise that underlies this investigation in its study of the digitization of academic libraries.

In essence the ACF was a relevant theory by which to examine the Brazilian academic digitization environment. It was also powerful as an instrument to provide the basis for proposing a model that systematically elucidates the role of advocacy in the process of digitization in the developing world.

Burger's Framework.

The advocacy coalition theory proposed by Sabatier and Jenkins-Smith (1999) is complemented by Peter Burger's (1993) framework of information policy issues in the international arena. Burger's (1993) framework is presented here to add elements that make for a more comprehensive view of the issues surrounding information policy, a clearer understanding of which will provide a better representation of the Brazilian case.

This second framework produces a conceptual setting within which information issues that affect information policy around the world can be better understood, that is, this is a framework specifically designed for the international context. Burger (1993) points out that information policy made in one nation will have effects elsewhere (p. 23). This assumes that the establishment of information policy is a dynamic process that is constantly refined as it is adopted or adapted elsewhere. This aspect is a central point in analyzing advocacy in developing countries (p. 25).

Burger's framework assumes a set of conditions for international contexts. First, political institutions, like those of Brazil, are complex. Second, for most countries other than the United States "policy is formulated and implemented on the belief that if it

worked for a developed country, which has already achieved technological and economical superiority, it will work for them” (p.25). This assumption has paramount importance for this research because, as the literature review suggests, information policies in most developing countries are frequently enacted without a clear understanding of the context and the situation in which they were originally formulated. Brazil however, is an example of the formulation of information policy that takes into account its specific conditions. For instance, as long ago as the early seventies, the federal government understood the importance of building an information policy that would promote the growth of a more cohesive information industry in order to support high tech research and development.

Burger’s approach calls for considering the “complexity of the environment in which each nation has to make national information policy” (p.26) and also asks for a clear understanding of the priority of goals for information policy. Burger acknowledges, “The primary push to develop information policy is seen as an economic one” (p.30). This assumption is a capital condition within which to analyze information policies in developing countries. Even though this study addressed information in the context of academic libraries, commercial and economic aspects played an important role in the evolution of information within academic institutions. Burger’s framework for analysis suggests further that once a country has identified its priorities, the consideration of technical, legal, economic, and political tools commences. At this point countries may also call for the assistance and advice of multinational bodies like the United Nations (UN), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and/or the World Bank. This set of considerations is not a rule, but does fit better those

nations in which there is an understanding of the role of the information sector in the economic development of the nation.

Burger also describes what he terms mutual responses that assist in the explication of the effect of one nation's information policies on another as well as the influence of multinational bodies and programs. This consideration in Burger's model is particularly useful for this study because it allows for the exploration of international networks and partnerships that support development. Some of these partnerships seem to start from pure economic and political perspectives (one example is the Southern Economic Market, MERCOSUR), and evolve later into advising and supporting more specific areas like information policy formulation in the Higher Education sector.

A major drawback, however, of Burger's framework is that it is not specifically designed for the complex international Internet society that has grown up. That is, it does not address a rapidly changing environment. However, when it is applied as a complement to the Sabatier and Jenkins-Smith approach for the study of the digitization process of academic libraries, it does offer multiple perspectives to analyze policy in an international context and assumes that each aspect is intertwined, so that changes at one end of the spectrum will necessarily affect the rest.

Elements of Information Policy Examined

This research asked whether awareness and advocacy by the main professional library associations and academic library leaders taken together with support from government agency officials in Brazil have played a role in the government's promotion and investment in academic digital development and in the creation of favorable government legislation and information policy.

Advocacy and Awareness.

As early as 1996 the American Library Association brought together participants from outside the profession of librarianship for a Summit on Equity on the Information Superhighway. The 20 participants included a Nobel Prize winner, Pulitzer Prize winners, researchers, and heads of public and private United States organizations. Held at the Rancho Mirage, California the Summit sought to discuss major public policy issues affecting four fundamental precepts of librarianship, intellectual freedom, intellectual property rights, privacy and equity, and included two precepts that had not been previously considered fundamental. They were advocacy and awareness (Turock, 1996). Evidence suggests that these precepts might be important in Brazil and everywhere (Todaro, 2006)(Opara, 2006)(DiMattia, 2005)(Amaral, 1991). Therefore they were investigated in this research.

Burger postulates that information policies are established without taking equity into consideration. Does Brazil demonstrate the role of the government in monitoring and promoting access to all people within its borders? Critical to the formulation of a model useful for developing countries is the consideration of the roles of government agency officials, academic library and professional library association leaders in the formulation and enactment of legislation and information policy regarding equity. Does the case of Brazil document advocacy in monitoring and promoting access to all people within its borders? Was the precept of equity articulated in the developing country of Brazil?

Awareness and advocacy are issues defined for this research within the context of the implementation and formulation of information policy in the public interest.

Advocacy is demonstrated by overt action taken in support or rejection of legislation and information policy (See Table 1). Awareness is defined as broad based professional knowledge of legislation and policy relevant to the digitization of academic libraries (See Table 1).

Global powers have articulated policy that stakeholders monitor and check for academic library issues in digitization. The widespread supposition is that this condition also exists in developing countries. That is, digitization has promoted in developing countries the use of advocacy groups to influence decision-makers. Mintrom and Vergari (1996) have discussed the existence of advocacy coalitions and their effects. For this research coalitions are defined as the union of individual groups for the purpose of promoting or defeating policy or legislation (See Table 1). In the case of developing countries, many issues related to awareness and advocacy need investigation. This study addresses actors and their organizations—professional academic library and association leaders and government agency officials—in enhancing the quality of digital library service in academic environments.

Chapter 2. Literature Review

The evolution of Internet use in Brazil has been constant and its growth has affected multiple levels of the nation's society. By the year 2000, the number of Internet hosts in Brazil approximated 460,000. Brazil was the thirteenth country in the world in terms of their number, which is not surprising in a nation where six out of ten taxpayers can file their taxes via the Internet or lawyers can examine Supreme Court decision via email (Sepin, 2000). Supranational electronic information analyses like the ones made by the Economic Commission for Latin America (CEPAL) in 2001 suggest that electronic information and digitization play a seminal role in facilitating the adequacy of academic library service. Brazil's experience in using the Internet demonstrates the immense capability of digital information. In addition, international agencies of research and development point to the potential of the Brazilian digital information market (Hilbert, 2001; UNESCO, 2001; World Bank, 2003). Brazil is a model that could be emulated by other South American nations because in spite of the advances in digitization within its own academic library environment, there are some inconsistencies that are shared by other South American nations: the infrastructure differences between public and private institutions, the regional differences, more advanced south than north.

Challenges and Barriers

The challenges remaining, however, are immense. This research proposed to uncover the challenges within the academic library environment apropos to its digitization and the barriers remaining to its development.

By 2000, Brazil had 156 universities, 71 of them public and 85 private (IFES). The total enrollment added to 1, 619, 000 students (World Bank, 2002). By the year

2003 the enrollment in undergraduate education reached over 3.8 million (McGowan, 2007). Brazil also ranked 72 on the World's Bank educational development index and holds an adult literacy rate of 89% (UNICEF, 2004). Federal and state universities accounted for more than half of the public enrollment. An important fact is that between 1980 and 1999 university enrollment in Brazil more than doubled (World Bank, 2002), which makes it one of fastest growing university enrollments in Latin America. Given this fact, it is clear that the growth of the university sector brought challenges to the library and information sector in charge of supporting the academic educational mission. Projections for the following ten years suggest that demand for higher education in Brazil will grow by more than half a million students by 2010. This research assumes that these challenges can only be ameliorated with the continued introduction of adequate legislation and policies for information digitization (Hauptman, 2002). This study, then, explored the Brazilian academic sector and its digitization under conditions of growth that have made supportive information policies critical.

The Major Actors

The library and information sectors in Brazil can be characterized as strong and organized. Three major organizations exist: first, the Brazilian Council of Librarianship (CFB) supervises the country with sub-regional councils in each state; second, the Brazilian federation of library groups, information scientists and institutions (FEBAB) is comprised of all library organizations in Brazil; finally, the Brazilian Association for Education on Information Science (ABECIN) is the umbrella organization for professionals interested in education in information science, which has strong links to librarianship. Funding for librarianship comes largely from Federal resources such as the

Ministry of Education and Culture which makes this government institution a powerful element in the library structure of Brazil.

Reasons exist to suggest that advocacy plays a role in the general development of librarianship in Brazil and, more specifically, in the development of digitization in academic libraries. While the Brazilian government has recognized the importance of the library and information sector for the development of the nation (Da Silva, 2003), the question for this research is whether the advocacy dialogue of government agency officials, academic and library association leaders and information policy makers has resulted in positive actions on information policies for the library sector.

Definitions

This study examined academic online information, government intervention through information legislation and policy and library organizational advocacy. For the purpose of this research academic online information is defined as the flow of information to and from academic libraries in Brazil using electronic media devices and computers (See Table 1). Government intervention is defined here specifically as policy action by the Brazilian government that affects the information sector regarding the digitization of academic libraries (See Table 1). For this research the condition for that intervention should be clearly specified in the form of legislation and/or policy. Advocacy is further denoted in terms of tying library digitization goals to the actions of the government. That is, in this case academic librarians and other actors previously noted have identified policy and legislation for the digitization of academic libraries and communicated them to the appropriate government entities and/or policy and legislation decision makers.

The case of Brazil suggests the assumption: that awareness and advocacy among professional library associations, academic library leaders, and government agency officials, as indicated in the ACF theory, may have played a role in the establishment of successful access. This research addressed that assumption. A second assumption is that partnerships appear as potentially one of the most important elements in the establishment of successful digitization efforts (Sabatier & Jenkins-Smith, 1999). The role of partnerships and collaboration has been assessed also by Kendall(2005) who concluded that, collaboration and information sharing in the policy formulation strengthen the impact and quality of its formulation” (Kendall et al, 2005, p. 28).

This research investigates the Brazilian case and assumes that partnerships are major components of the development of the academic information sector even when there are no systematic procedures for their creation.

In this research, advocacy is seen as a force to resolve isolation between government, decision makers, and the academic sector in developing nations which result in the decision makers” “remaining” remote from digitization efforts (in spite of the advances made) due to the inability of the academic sector to voice their concerns in sufficient numbers to get them heard. This exploratory case study investigates how library actors voice their concerns in the context of Brazilian librarianship. Success depends not just on the rightness of the cause but also on how effectively it is communicated. Advocacy forces are the focus of research in the areas of communication and information policies (CIP) and information and communication technologies (ICT). In the case of this research, advocacy forces are perceived as seminal in the growth of the Internet in Brazil (Wilson III, 2004).

Muller points out the importance of examining advocacy forces in the context of Internet development (Mueller et al., 2002), and the need to understand information policies as objects of activism. Since policies tend to reflect the ideologies of the decision makers (Bound, 2006), then the civil society and its groups need to be investigated because it is evident that their participation in Internet planning, use, and development is rising (Selian, 2004). Given Brazil's strong and cohesive organization of libraries, it is important for this exploratory research to address whether library leaders communicate and exchange ideas with information legislators and policy makers. The results of this examination in uncovering elements for successful promotion of digitization would inform practice and allow advocates to refine their methods in an effort to participate in the discussion and implementation of policies and legislation.

In essence, this research questions whether and how developing countries, unlike global powers, emphasize the creation of processes that support their needs regarding digitization. The research of Bastos da Cunha (1998) and Da Silva (2003) have pointed to the changing role of Brazilian academic libraries and their interactions with the policy process. This research presupposes that only when advocacy and awareness occur will the voices of librarians and library supporters be heard (Montealegre, 1997). In addition, it questions whether in developing countries traditional awareness/advocacy groups, like library associations, have extensive or limited influence in the policy-making process.

Brazil, like other nations in South America, represents a case of constant interplay, among the library field, government, and Higher Education. Challenges and barriers are still large, but while there is recognition of the dimensions of this interplay, to what extent is it perceived to exist? (Thiesen & Severo, 1998; Goncalves, 2001). This

research examined evidence and dialog as it relates to advocacy and its resultant effect on policy.

Burger (1993) does not address equity explicitly as the focus for advocacy but supports the concept that affordable access to information is of central importance for the nations of the world. The issues of affordable access and equity are strongly related to the economics of the users, the networks and the nations. In addition, technological development and digitization are issues of access. Mody (1995) has argued that “the information highway and other such proposals, driven by economics and technology, are not socially and spatially neutral” (p. 17). Wilson (2004) suggests the same when explaining that that Internet diffusion in Brazil (related to digitization) “must be explained in dynamic as well as structural and institutional terms” (Wilson, 2004, p. 165). This research looks at the dynamic forces that promote advocacy. It seems from Wilson’s perspective that information activism and advocacy were key for the Internet revolution in Brazil. That revolution later translated to the academic environments.

Disparity is widespread throughout the world. Since the digitization of information offers potential for making positive strides toward equal access, it is necessary to provide and enact information policies that include equity as a factor. In the case of developing countries, for instance, obstacles remain to be overcome. Petrazzini and Kibati (1999) enumerate some of them: access is expensive and limited due to current infrastructures. In addition, who pays this cost? The authors argue that cost “has rendered Internet access a very costly proposition throughout the developing world” (Petrazzinni & Kibati, 1999, p. 31).

A review of the literature has shown that the Brazilian government became strongly interested in the information world during and after 1995 (Da Silva , 2003). Many researchers pointed out the government efforts to recognize the importance of information as a national resource (Da Silva, 2003, Ferraz, 2000). It is estimated that in 2010 almost all the Brazilian university libraries will be computerized (Da Cunha, 2000), and digitization will be widespread. But there is concern about the financial aspects of Brazilian academic library development. Will the government continue to support digitization? This research presupposes that awareness and advocacy are important for this to occur.

Chapter 3. Research Questions

Five major research questions arise in relationship to the digitization of academic libraries in developing countries as represented by the best-case scenario of the country of Brazil. Table 2 lists survey items addressing each major research question with the interviews questions that were imposed, some of which were followed up with probes, when they were deemed necessary.

Research Question 1 (RQ 1)

Major legislation and information policy were enacted affecting academic library digitization, however the library community's awareness and involvement in activities promoting academic library digitization remains undocumented. Given the forgoing considerations it is relevant to ask three questions: With which legislation and policy are the respondents most familiar? What are the perceived influences on Brazilian policymakers of government agency officials, academic library leaders, and library association leaders in the establishment of information legislation and policies affecting the digitization of academic libraries? In what actions did members of the three sectors participate? This research question investigates the present awareness of relevant legislation and policy by the three sectors under study; it also attends to the actions of members of the three sectors in the legislation and policy process.

Table 2. Interconnection of Research

Research Question	Purpose	Web survey questions	Interview questions
RQ1: What are the perceived influences on Brazilian policymakers that led to the establishment of information policies affecting the digitization of academic libraries?	Awareness	I, II (1,2,4a, 4b), III	What advocacy actions were undertaken by the sectors?
RQ2: What elements of an advocacy campaign were in place when policy favorable to academic library digitization was enacted?	Advocacy	IV	Who developed and carried out the elements of the advocacy campaign? Did you participate in the activities? Were new structures in place as a result of the actions? Do ongoing communication and collaboration still exist?
RQ3: Has Brazil's legislation and policy influenced the advance of digitization inside and outside Brazil?	Influence	V (a, b, c)	Were there plans with goals and objectives to advance digitization? Were they used as guidelines? Did they influence digitization in the local, state, regional, national communities?
RQ4: What is the overall perception of the Brazilian sectors under study regarding their future roles in the enactment of information policy?	Obstacles	VI, VII (a, b, c, d)	What roles must be played by each of the sectors? How can they help eliminate barriers?
RQ5: Do the elements found in the Brazilian case suggest a model for digital academic library development in other developing Latin American countries?	Model	I-VIII	

Research Question 2 (RQ 2)

Da Cunha (2000) describes multi-level Brazilian efforts and programs that have intervened in the digitization of the Brazilian academic library. Da Cunha (2000) also suggests that the technological scenario regarding Brazilian academic libraries became more favorable after government efforts to support them. Miranda (2000) calls for a constant dialog between government legislators, policy decision makers and advocacy agencies that use and produce electronic information. Da Silva (2003) characterizes this dialogue as political because of the negotiation processes that have to occur. RQ2 addresses the advocacy factors that intervene in this dialog. Given these considerations it is relevant to ask: What elements of an advocacy campaign were in place when policy favorable to academic library digitization was enacted? Who were the actors that carried them out? This question also seeks to determine who produced which elements of the advocacy campaign, where one existed.

Valentim (2002) and Pinheiro (1999) have addressed the issue of government programs and participation in the information sector, warning about the need for a more integral approach to advocacy efforts and a more organized set of guidelines for the library sector to influence the government's promotion of information legislation and policy favorable to the academic libraries. From this line of reasoning other questions follow that will be considered for future research: Had the sectors of influence developed formal plans with specific goals and objectives to advance the digitization of academic libraries? Were the plans used as guidelines for action?

Research Question 3 (RQ 3)

Since the Brazilian information industry has experienced a boom (Valentim, 2002), and the Brazilian government implemented rational policies relevant to the Information Society (Da Silva, 2003), it is important to investigate the potential influence of Brazil's legislation and policy on other Latin American nations. Questions arise about the adoption or adaptation of the information policy of one nation by another outside those policies designed by world powers and taken for their own by developing nations. But, first, before documentation on the influence of Brazil's national policy outside its borders is collected it is critical to discern their effect on the policies of the regions, states and localities within the nation itself. Given this consideration, the question raised is: Has Brazil's national legislation and policy influenced similar formulation of local, regional and state level information legislation and policy?

Research Question 4 (RQ 4)

Brazil has experienced government support for the development of technology, particularly information technology, since the 1950s (Valentim, 2002, p. 92). The challenges of the information society have promoted government policies at various levels, from the creation of the Information Society Program to the improvement of the quality of the government websites (Da Silva, 2003) and to efforts targeted at the digitization of academic public and private libraries like the Private Virtual University of Brazil (Da Cunha, 2000).

Given this scenario it is relevant to ask: What is the overall perception of the Brazilian academic library sector regarding the future roles of government agency

officials, academic library and library association leaders in the enactment of information policy favorable to the digitization of academic libraries? What obstacles need to be overcome for progress to continue?

Research Question 5 (RQ 5)

From the data gathered in order to answer RQ 1 - 4, it is now relevant to ask whether the elements found in the Brazilian case suggest an advocacy model for the formulation of information legislation and policy favorable to the digitization of academic libraries in other developing Latin American countries through awareness and advocacy campaigns and to ask: What are the elements that comprise the model?. While the purpose of a qualitative study is not generalization it does ask for transferability. Qualitative research assumes multiple realities which are dynamic and in which external validity is replaced by transferability (Lincoln, 1985). In-depth interviews, document review and questioning the key people who played specific roles are among the elements of a qualitative study (Rowan & Huston, 1997). This type of research assumes from the beginning that external credibility “pertains to the confirmability and transferability of findings and conclusions” (Onwuegbuzie & Leech, 2007, p. 235).

The research reported on here follows the guidelines for credible qualitative research in investigating a real social world and identifies categories, uses triangulation of methods, and looks for transferability (Onwuegbuzie & Leech, 2007). The social world is the Brazilian academic library environment. Triangulation of methods such as a web-survey, interviews and document reviews allows for a complementary perspective on the social phenomena.

Methodology and Methods

The method invoked for this research was the case study, which is useful to analyze and evaluate processes in exploratory research (Yin, 2003). The case study provides a means to analyze the policy process. This research relies on it to investigate the outcomes of public intervention, in this case the intervention of government agency officials, academic library and professional library association leaders, in the formulation of legislation and policy favorable to the digitization of academic libraries in Brazil. Further, the case study as the method for this research allows the verification of the theoretical approaches proposed by Sabatier and Jenkins-Smith (1999) and Burger (1993) in the area of library awareness and advocacy. Finally, a case study methodology is useful here because it allows looking in depth at the context in which policies were enacted in the Brazilian case.

Another reason to consider the case study as a valid strategy for this exploratory research is that the digitization process of academic libraries in Brazil is a contemporary occurrence. As Yin (2003, p. 13) argues, the case study is best when confronted with a “contemporary phenomenon.” This research was intended to propose a model, another distinctive feature that case study research offers (Yin, 2003). The events in this case can be explored through document evaluation, survey questionnaires and interviews. This research looks at what can be learned from the analysis of the Brazilian case regarding digitization of academic libraries useful to the larger audience of developing nations (Yin, 2003). The selection of this case is theory driven, using, in this particular instance, the Advocacy Coalition Framework (ACF) developed by Sabatier and Jenkins-Smith

(1999) as complemented by Burger's framework. Finally, the case topic, the digitization of academic libraries in Brazil, was the basis for an extensive literature review.

A basic supposition for the research is that in studying Brazil using the best- case scenario technique would uncover a high number of factors influential in the success of academic library digitization, which can then serve to encourage other developing South American nations to attend to these factors to advance their digitization efforts.

Respondent's answers were grouped into categories devised according to patterns identified in the answers. The pattern-matching analysis was performed in two stages. The first stage involved an exhaustive analysis of the answers to the web-survey questions looking for patterns in concepts and words. Phrases were organized according to their frequency. Patterns represent an aspect of data analysis where "the researcher establishes patterns and looks for a correspondence between two or more categories to establish a small number of categories" (Creswell, 2007, p. 246). Examples of patterns found were: "Library modernization needs", "Individual lobbying and pressure", "Education and training in online resources", "Professional development ". The second stage was to summarize the first set of patterns into a more general structure of categories that would help to support a model. Examples of categories are: "Equity", "Education", "Global Economy and competition". The two stages pattern-matching analysis improved the reliability of the analysis and helped identify common elements in the open-ended answers. The model results of the identification of categories of advocacy and their relationships.

Data Collection and Analysis

Data collection to examine the issues suggested by the research questions was centered on federal government agency officials influencing library digitization and academic library and professional library association leaders. For this research the method employed to determine the sample of subjects from each of the three denoted groups was a convenience non-probability technique: snowball sampling. This method allowed for the participants to identify experts and other respected voices in the field of digitization of academic libraries in Brazil whose opinions were considered trustworthy. Creswell defines snowball as a sampling that “identifies cases of interest from people who know people who know what cases are information-rich” (Creswell, 2007, p. 127). As discussed earlier, the sampling method limits the generalizability of the results. It may be the case that the snowball sample did not include all the relevant experts and/or may not capture the opinions of individuals with views different from the group sampled or recommended for sampling. However in the context of the social reality being studied, namely the Brazilian academic library environment, snowball sampling allows for “finding well-informed members of a group not otherwise visibly identified” (Krathwohl, 1997, p.173), which was considered appropriate for this study. In this case the actors are: government agency officials, academic library, and library associations leaders who, based on positions held in libraries and library leadership groups, were considered experts in the field of digitization of academic libraries and visible in the professional and scholarly literature. They were asked to suggest other members of the three sectors who held a similar degree of expertise. The method allowed this research to recognize and discover subjects relevant to the digitization of academic libraries in Brazil that might

otherwise have been overlooked. It was possible to identify board members of groups and organizations, but more important for this study was the identification of those considered influential by their own peers. Again, the inherent limitations of this method may suggest also that not all experts were the subject of the web-survey. The sample might have created a bias in that those selected might have offered similar or consistent views. Those not selected might have offered different view on the issues.

This research proceeded through the use of three data collection methods: surveys, interviews and a document review (See Table 3).

Table 3. Elements of Data Collection

Sources	Channels
Survey	Sent over the web
Interviews	Carried out by telephone and email
Document Review	Tracked via the web

The Survey.

Selected through non-probabilistic convenience sampling (snowball), the total number of respondents identified for this study was 93. In the context of the digitization of Brazilian academic libraries this sample size was appropriate because it included participants who possessed the expertise to answer the web-survey and were knowledgeable about the parameters of the phenomenon that this research studied (Marshall, 1996). The participants value as “experts” was corroborated by the document review of organizational charts of various library and information organizations. Their presence at the decision making level in the organizational charts was a strong argument for them becoming the target audience for web-based surveys. The survey was also informally pilot-tested by sending the questionnaire to eight academic leaders not included in the sample. No changes were proposed or suggested by the academic leaders. The web-survey was sent four times over four months to chosen subjects in order to elicit the maximum response rate and data collection possible. The web-survey was sent in Portuguese. The translation was done “by native” Portuguese speakers who oversaw the language details and performed the translation.

Board members of the Brazilian Federal Council of Librarianship (CFB), the Brazilian Association for Education on Information Science (ABECIN), the Information Society Program (ISP) and the Brazilian Federation of Library Associations, Information Scientists and Institutions (FEBAB) were the recipients of the survey along with other government agency officials, academic library and library association leaders added to the sample by members of these groups (See Table 4).

Table 4. Respondents' Library and Information Organizations

Organization	Description	Method of data collection
1. Federal Council of Librarianship (CFB)	The highest federal organization of librarianship in Brazil.	Web Survey and telephone interviews
2. Brazilian Association for Education on Information Science (ABECIN)	The highest level organization of professionals interested in education on Information Science, the Brazilian equivalent of ALISE.	Web Survey
3. Information Society Program (ISP)	Public and private think-tank and research program created by The Ministry of Science and technology (MCT).	Web Survey and telephone interview
4. Brazilian Federation of Library Associations, Information Scientists and Institutions (FEBAB)	The largest Brazilian organization of associations interested in libraries and information science.	Web Survey

As stated before, it was assumed that because of their positions these board members would be aware of library and information policies and would be able to suggest other subjects with similar or higher levels expertise who were able to complete the survey. In addition, the second line of individuals, those recommended by the board members, was also asked to suggest possible library leaders, library advocates, and/or government agency officials who possessed the expertise to complete the survey.

Fifty three surveys were returned for a response rate of 56.9%. Forty-Seven or 50.5% were usable. Six (6.4%) were discarded because of the lack of minimum information required, such as the position and address of the respondents (See Table 5). Missing data were minimal. For the purposes of this research, the sampling method produced a set of responses that provided the research with a sufficient amount of analyzable data. Data received were translated back to English under the supervision of a native Portuguese speaker.

Of the fifty-three (53) respondents to the web-survey eleven (11) or 20% were representatives of professional library association leaders. Researchers working at or in contact with libraries and information centers comprised 15 (27.2%) of the respondents. Thirteen (13) or 23.6% of the respondents were academic library leaders. Sixteen (16) or 29% of the respondents were government agency officials with strong links to library funding and government sponsored projects and programs (See Table 6). The respondents, therefore, although not equally representative across sectors studied, were all within a similar range.

Interviews.

Following the web-based survey, six (6) interviews were arranged with respondents selected to amplify the survey data already gathered. The respondents were chosen to represent the major groups participating in the study, including academic library and library association leaders, researchers and government agency officials, because of their positions of leadership in the organizations from which the sample was drawn and because of their up-to-date

Table 5. Web Survey Responses

Disposition of Web Survey	Frequency (f)	Percentages
Returned	53	57
Discarded	6	6.5
Usable	47	50.5
No response	40	43.0
Total sent	93	100

Table 6. Survey Respondents by Sector

Group	Frequency	Percentage
Professional library association leaders	11	20.8
Researchers	15	28.3
Academic library leaders	11	20.8
Government officials	16	30.1
Total	53	100

and extensive knowledge of digitization. The interview questions arose from areas in the survey which needed further information on each of the major research questions. Probes were added to the interview questions when necessary to gather ancillary information.

The telephone interviews were performed in English and Portuguese and in some cases in Spanish. Respondents asked the language in which they were most comfortable answering the questions. Finally, some electronic email messages were exchanged with the respondents. Both techniques were employed to increase the quality and number of useable responses.

In summary, snowball sampling allowed this research to identify subjects who were critical for the investigation, but it might have omitted those in other circles whose assessment differed from those known to each other. Given their executive and strategic positions and professional expertise, it was assumed that they were important and accurate sources of information. Their sense of awareness regarding the relationship between government decision makers and library advocates made them ideal candidates for the survey and follow-up phone interviews. Their expertise, knowledge and positions in the group from which the sample was derived made them appropriate respondents for this study.

Interview data were collected from Brazilians through telephone and email interviews from the members of identified leadership groups:

First, two members of the Federal Council of Librarianship (CFB), who supervise and regulate most professional librarianship in Brazil; second, one member from the board of the Brazilian Association of Education for Information Science (ABECIN), which is comprised of library and information professionals particularly in the academic

sector; third, two members of the board of the Internet Society Program (ISP) a government organization established by the Science and Technology Ministry that articulates and elaborates research and policy in the area of electronic information. Fourth, one member of the board of the Brazilian Federation of Library Associations, Information Scientists and Institutions (FEBAB), which is comprised of a composite of library organizations with multiple and diversified professional interests.

The questions asked in the interviews were open-ended with extensive probes to parallel the data collected in response to the survey data gathered on the major research questions.

Forty-seven (47) web-based surveys and six (6) follow up interviews were conducted. Identities of the respondents were protected to guarantee their honest opinions. Protection of human subjects through the IRB process was obtained to secure the safe use of information disclosed by the subjects. The web-based survey was explicit about the fact that the analysis would not reveal their identities. The follow up interviews started with the explicit recognition that identities were not going to be revealed and that any opinion given was going to be used only for the purposes of this research; anonymity would be protected.

Document Review.

In addition to the survey and telephone interviews a document review was conducted of information policy available on government web sources. Brazilian information legislation and policy are published on the web and updated constantly, which makes the web a good tracking source. It is possible to trace the development of legislation and policy as it is formulated and adopted. In addition, other library and

information institutions and non-governmental organizations (NGO) include government legislation and information policy relative to their interests on their websites. These websites were reviewed for additional information pertinent to the study. Another advantage of web-based resources is that they allow examination of legislation and information policy as it is enacted and immediately published. This helps in developing a clear picture of the background and context in which future information policy is put into place from its inception to its enactment.

Limitations

The methods used here are limited by the respondents' knowledge of the issues under investigation. The non-probabilistic convenience (snowball) sampling method limits the potential applicability of the results. To counteract these possibilities, this research involves information from three sources for data triangulation via surveys, telephone interviews and document reviews. Triangulation determines "the consistency of evidence gathered from different sources of data across time, space, persons, by different investigators or different research methods" (Kathwohl, 1997, p. 694). This approach allowed verification of data from multiple perspectives. Finally, as an exploratory case study, this research set up an agenda for future in-depth analysis of the relationships among government agency officials, academic library and library association leaders and the Brazilian information policy decision makers in information policy formulation in developing countries around the world.

Through the pattern matching analysis of the survey and interview data elements of a successful advocacy campaign were determined and organized into categories. (See Table 2).

Chapter 4. Findings

Through the analysis of the data collected, elements of a successful advocacy campaign were determined and organized into categories. For this purpose data from the survey were analyzed and their results were followed up with interview questions when more in-depth data were needed.

Survey Question I (SQI)

SQI produced descriptive statistics assessing the degree of awareness of different types of information legislation adopted by the Brazilian government (See Table 7). Respondents were asked to rank six pieces of legislation according to their degree of familiarity with them. First, the data were analyzed to determine which of the pieces of legislation were recognized and by what number of the respondents. Second, the data were reviewed for the overall findings on awareness.

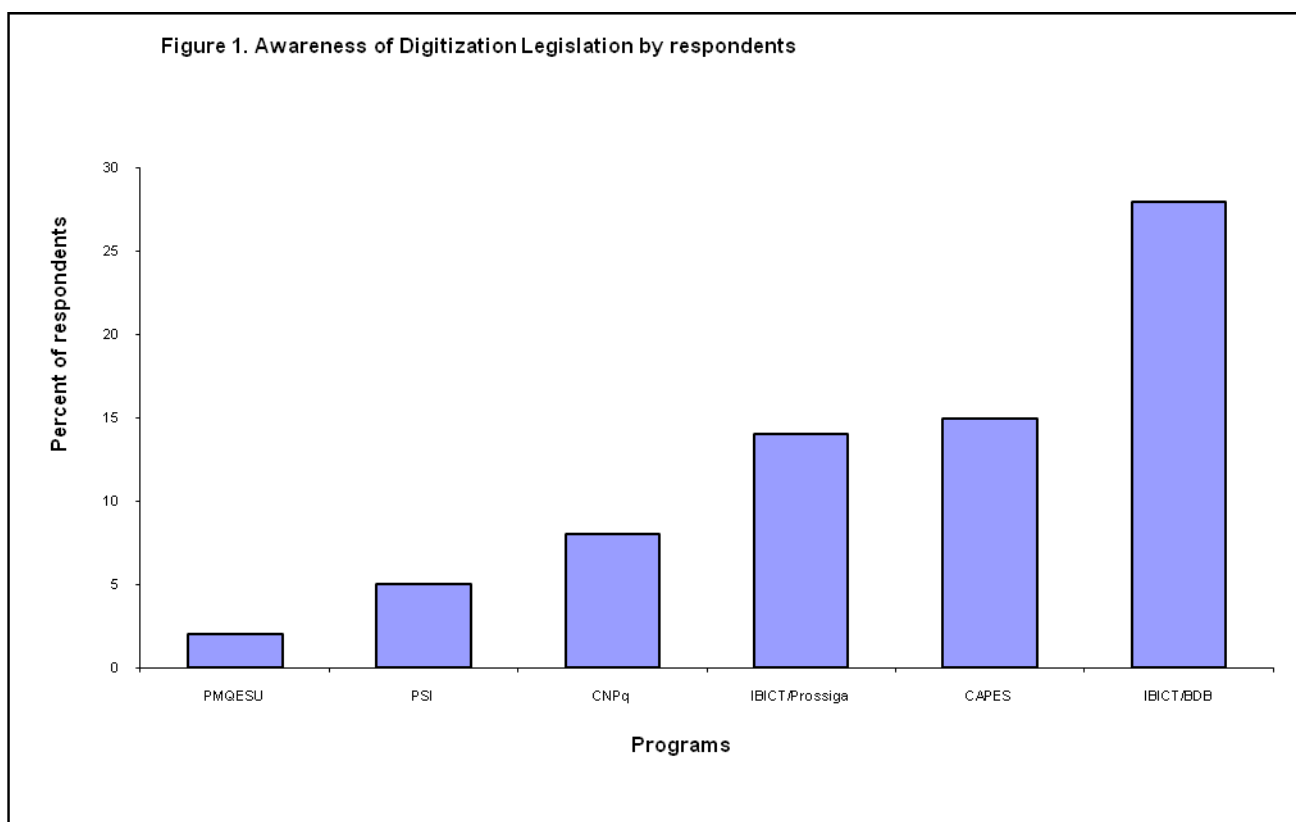
Answers to this awareness question were received from thirty-eight (38) or 81% of the 47 participants. From high to low, the legislation best known was Digital Library of Brazil (BDB), which was recognized by twenty-eight (28) or 39% of the participants. PROSSIGA ranked second in awareness with fourteen (14) or 19% of the participants recognizing it. CAPES was recognized by fifteen (15) or 21% of the respondents, CNPq by (8) or 11% of the participants and PSI by five (5) or 7% of the respondents. Finally, the PMSQ Program was recognized by two (2) or 3% of the participants (See Figure 1).

The higher rankings for BDB and PROSIGGA legislations result from their visibility within the context of the entire Brazilian digital sector. PROSIGGA is one of the oldest pieces of legislation. It has gained more importance in the last fifteen years

because of its emphasis on the advancement of the Internet and the creation of communication services. It is perceived as the biggest contributor to Internet

Table 7. Awareness of Digitization Legislation

Legislation	Purpose
Brazilian Digital Library(BDB)	(1990). Legislation BDB7654. To build a central portal of digital information
Promotion of Science, Technology and Innovation(PROSSIGA)	(1995) Legislation Prossiga 1233.71. To promote the advancement of Internet information and communication services
National Council for Scientific and Technical development (CNPq)	(1951) Legislation Law 1.310. To fund and support Brazilian research particularly in the Higher Education sector
Higher Education Personnel's improvement (CAPES)	(1951) Legislation 29.741. To promote education excellence in Brazil
Information Society Program(PSI)	(1999) n. 3294/99 To increase and enhance development in digital information
Higher Education Modernization and Qualification Program (PMQESU)	(1997) Legislation n. 469 (INEP. To promote academic quality in Brazilian graduate education



development in Higher Education, where it has been particularly seminal in funding digitization programs. PROSSIGA, created in 1955, with the intention of promoting science, technology and innovation, currently serves as the government's main program for the advancement of Internet information in vital areas such as science, technology, and Higher Education. BDB, like PROSSIGA, is an initiative of the Brazilian Institute of Information for Science and Technology (IBICT), and is also under the sponsorship of the Ministry of Science and Technology. Its current purview, completing a central portal of digital information, is also important across all Brazilian digital sectors.

CAPES, which came in third in awareness, is the legislation that promotes education excellence in Brazil. The coordinator of Higher Education personnel's improvement, it is less well known since its beneficiaries are in the Higher Education

sector alone and dedicated to the improvement of Higher Education through the improvement of human resources skills, a specifically targeted piece of legislation. The fourth place belongs to CNPQ, which funds and supports Brazilian research particularly in the Higher Education sector. It was established in 1951 and is officially the program from the National Council for Scientific and Technical Development. The two pieces of legislation least known, PSI and PMQESU, are even more targeted. They are also focused on Higher Education, the first specifically on funding and promoting research that develops digital information and the second specifically on enhancing the academic quality of graduate education. PSI was created in 1998 and is, therefore, a young program in comparison to others, as is PMQESI, which was passed in 1971.

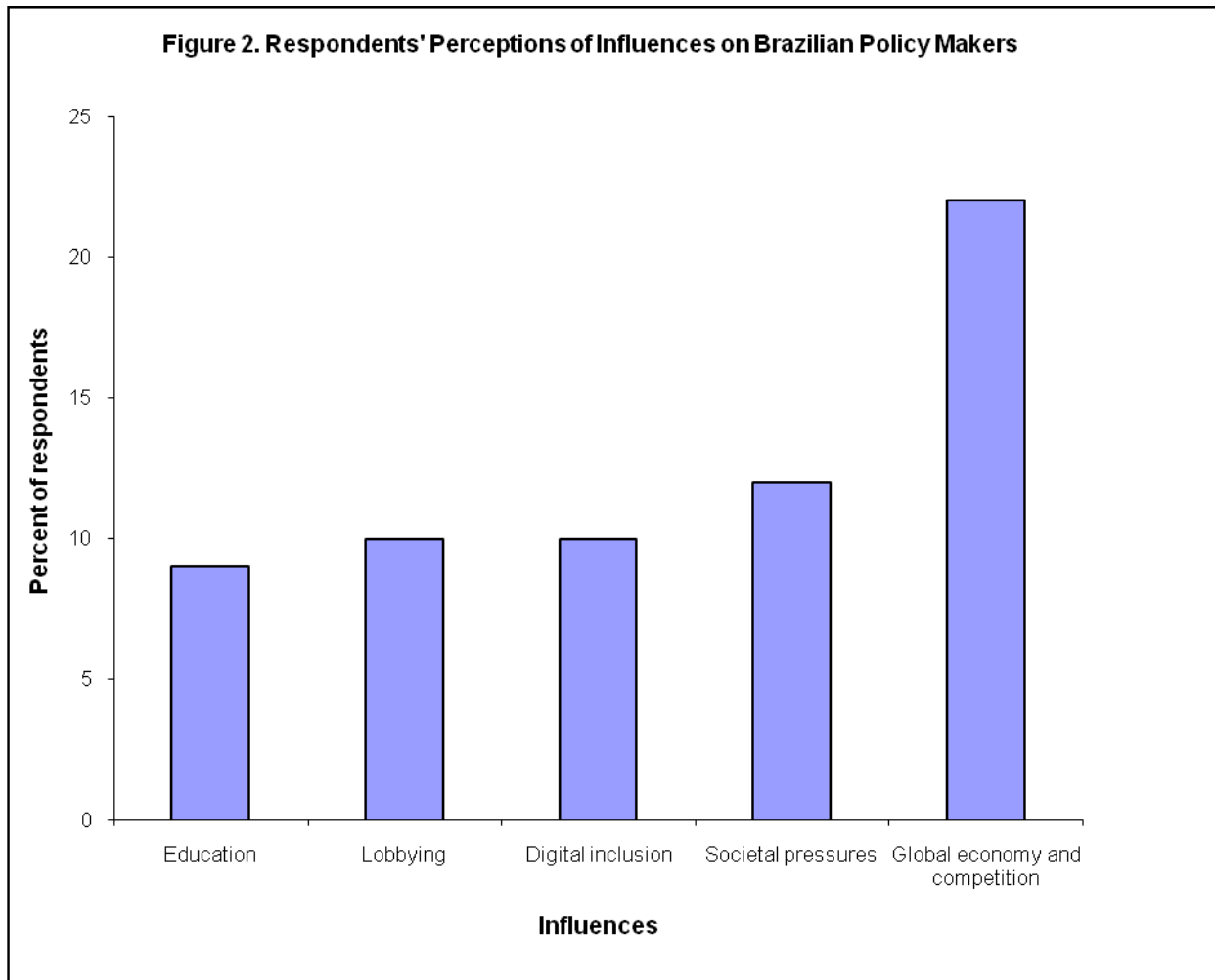
The important finding from this data is the low level of awareness in general among the participants who were considered informed leaders in this field. The items ranked higher in awareness were found among government programs promoted by the central Ministry of Science and Technology and the Institute of Information for Science and Technology (IBICT). No parallel set of organizations exists in other South American countries. If other South American nations conceived of similar entities, entirely devoted to the promotion of Science and Technology, the programs they sponsored and promoted might experience greater awareness and perhaps growth, especially in times of early development when fast access and the use of the Internet was made a priority. The main goal of the Brazilian Ministry nowadays is to build a central portal of digital information for all with strong emphasis on serving the needs of the educational community (Medleg et al, 2003). The results suggest that advocacy among the Higher Education community,

focused on the role of the library in the creation of such a portal, might contribute to growth in academic digitization in Brazil and among other developing nations.

However, the fact that awareness was low even among this audience of influentials, indicates that a large untapped number of individuals are still available to recruit to advocacy, but only if they are made aware of legislation basic to the digitization of academic libraries and the resulting funding that can arise from it. . The necessity for the institution of an awareness focus in any advocacy campaign is made clear. The need for the creation of collaborations and alliances to increase communication among relevant audiences is also apparent. A single easy-to-read page reviewing legislation from the time it appears in the Congress to the time of its passage or failure to pass into law could serve as one of the major forms of communication for legislative awareness. This awareness focus and the assurance of regular legislative briefings could be coordinated through the Federal Council of Librarianship, which serves the coordination function among the activities of all Brazilian library associations.

Survey Question II (SQ II)

SQII gathered data on the influences on Brazilian policy makers that led to the establishment of the legislation that shaped information policy. Responses from thirty-seven (37) or 79% of the participants were analyzed using pattern matching (See Figure 2).



Participants' comments pointed to five categories arising from fourteen different influences. They are arranged from high to low, that is, from the categories that were commented on most to those that were commented on least. The five categories included and examples of statements related to those categories are indicated:

- 1.) Global economy and competition: "There was a need on the part of Brazilian politicians to adapt to the rules of the Global Economy".
- 2.) Societal pressures: "The biggest influence was the civil society".

- 3.) Digital inclusion: “There was an attempt to reach high levels of digital inclusion”.
- 4.) Lobbying: “Lobbying and pressure on the part of Library and Information, and Science and technology sectors to offer fast access and dissemination to scientific knowledge”.
- 5.) Education: “There was a need to incorporate Brazil to the information Society, particularly through distant education programs”.

The need was made apparent for the educational and scientific communities to experience the *digital inclusion* that result from international access. As one respondent put it, “It was the growing global emphasis on digital information that led to the production of entities like the Open Archives, which are significant for researchers.” Academic library leaders voiced a range of opinions around the first theme, the influence of the *global economy and competition*. The statement from one other academic library leader focused much of the opinion, when he said that, “Brazilian policy makers want to be part of E-government and the opportunity for economic development in a competitive society that digitization brings.” The second category, *societal pressures*, arose among association leaders around the need for modernization in many aspects of the library organization, but particularly as one put it, “the demand it created for information that was disseminated rapidly, and the technologies and tools that support that dissemination.”

Ten government agency officials pointed out the need for research and development as a *societal pressure*. One said that, “Education and academic access to digital information is crucial for Brazil to stay economically progressive.” They also cited

the pressures of *lobbying* and pointed to “advocacy groups and individual lobbyists as important influences on the enactment of legislation and information policy that promotes the digitization of academic library information.” In that vein library association leaders pointed to the success of previously funded digital projects, saying that they are, “a strong ally in lobbying for continuing support.” Finally, education was suggested as a category of influence because of several statements related to it. One example was the case of an academic librarian who suggested as an influence on Brazilian policy makers “the need to improve the management, acquisition, and dissemination of scientific, cultural, and technical information in Brazil in order to promote education as a final goal”.

Survey Question II-1 (SQII-1)

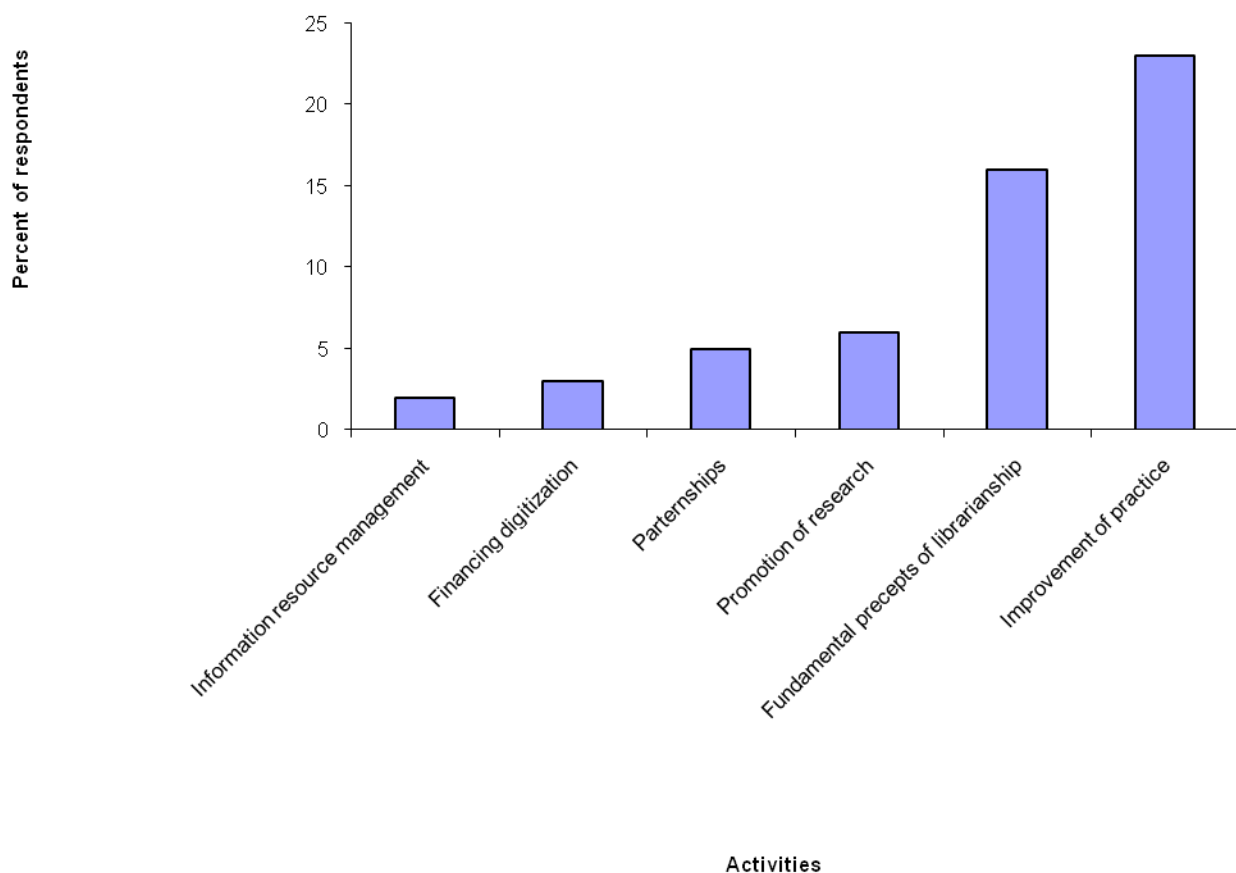
In SQII-1 and interview questions respondents were asked to specifically address the activities of each of the sectors under study. Twenty-nine (29) or 62% responded to the question, identifying a total of 20 activities. All of those interviewed answered the relevant interview questions and probes. Figure 3, based on SQII-1 and the interview data make up the graph delimiting activities for government agency officials under six categories. The six categories included and examples of statements related to those categories are indicated

1. Improvement of practice: “Promotion of discussions on the need to modernize the existing information infrastructure”.
2. Support of equity of access: “Offering of online information services for the citizen”.
3. Promotion of research: “Promotion of scientific information dissemination through online information platforms such as Theses and Dissertations

(TEDES).” “ The portal of journals CAPES with thousands of national and foreign periodicals available”.

4. Partnerships: “Establishment of partnerships with international organizations”.
5. Financing digitization: “Projects for improvement of Library digital infrastructure”. “Financing of infrastructure”.
6. Information resource management: “The IBICT is building up a repository of digital information that will be used by all ministries”. “The IBICT is promoting the strategic management of information”.

Figure 3. Respondents' Perceptions of Activities of Government Agency Officials



Academic library leaders pointed most frequently to the officials' work on "digitization that improves practice," including, as one said "legislation that led to distance education, the book portal and the Brazilian dissertation library." Their advocacy was perceived by another respondent as "extending from the inception of the idea to the ultimate establishment of the newspaper portal through the CAPES legislation." Support for the fundamental precepts of librarianship was apparent from respondents in the three sectors investigated. One commented that "The officials' advocated for legislation that supported intellectual property rights, equity of access, digital inclusion, open source software and licensing that was fair to academic libraries." All are among the profession's fundamental precepts.

Library and information researchers, along with library association leaders, noted the involvement of government agency officials in the promotion of research. Three respondents also agreed that, the creation of virtual libraries and their involvement in sponsoring programs and activities that improved access for all citizens of the nation were high on the list of the officials' activities. Partnerships were another area in which the officials were active. One respondent noted that they "encouraged cooperative programs especially for infrastructure development." Academic library leaders pointed to activities that encouraged cooperation and partnerships among all types of libraries. One cited government agency officials' activities in "financing and promoting funding among the members of Congress."

The fact that government agency officials had mounted innovative initiatives for Internet development was also perceived as improving practice. The Information Society

Green Book, published by the Information Society Program, includes a strategic plan for future initiatives and a summary of the existing initiatives, making possible duplication and diffusion throughout the country. Other countries in South America have had difficulty in articulating a similar vision for dissemination. In spite of this a limited amount of recognition was given to a series of activities in information resource management, including strategic planning.

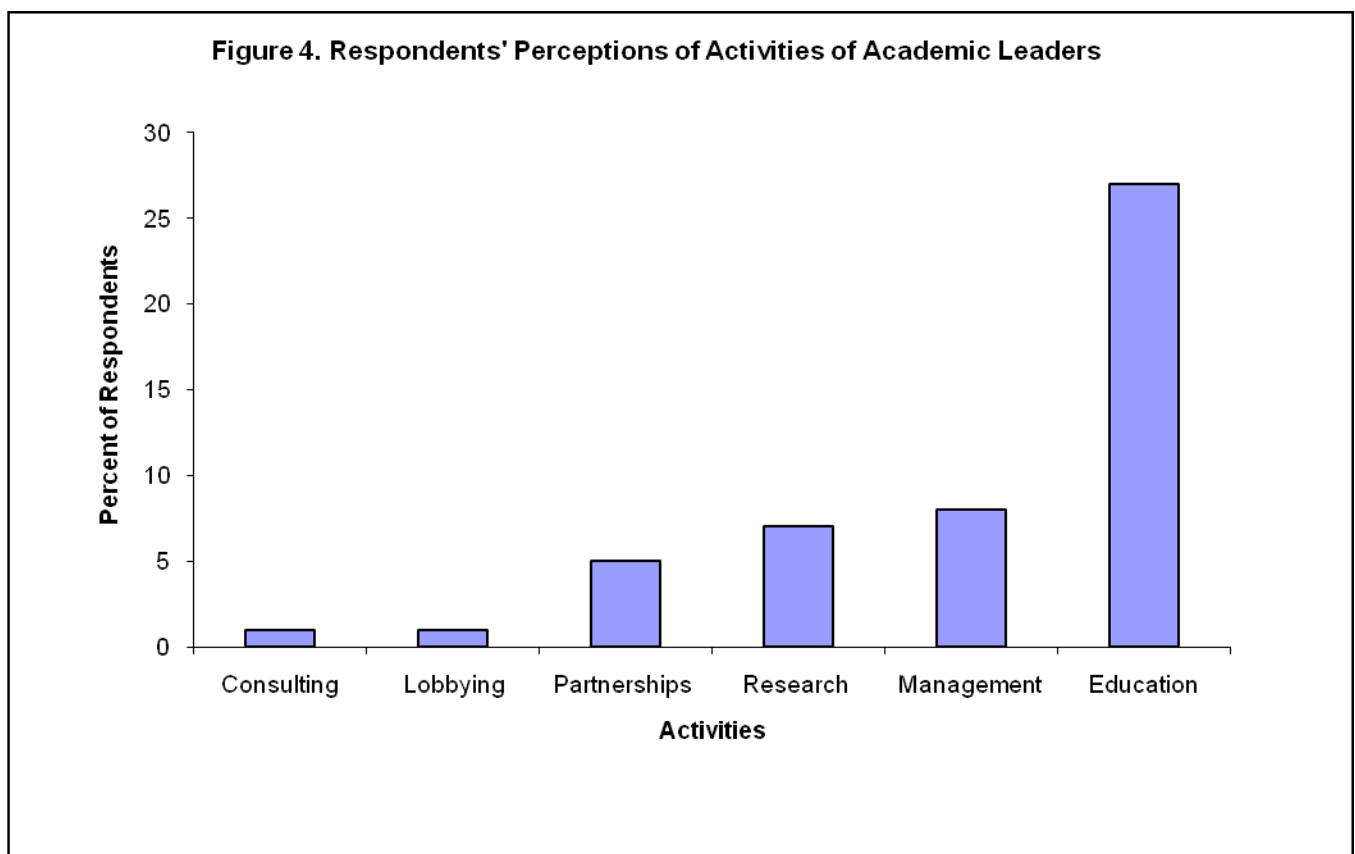
Researchers, along with government agency officials themselves, noted the officials' work on the enhancement of E-government. Three government agency officials added one remaining activity as an area in which they were active, that is "distance education development."

Survey Question II-2 (SQII-2)

SQII-2 and interview questions asked about the activities of academic library leaders with which the respondents were familiar. A total of 12 activities were identified. Thirty-six (36) or 77% of the survey respondents answered this question; all those interviews answered similar questions. Categories in their responses are depicted in the graph presented in Figure 4. The six categories and examples of statements related to those categories are indicated

1. Education: "Leadership on the part of library school faculty by developing projects". "Performing training on use of electronic information resources".
2. Management: "Library managers paying attention to user information needs". "Coordination of digital collections".
3. Research: "Active participation in international conferences".

4. Partnerships: “Establishment and promotion of partnerships with information institutions such as IBCIT and BIREME”.
5. Lobbying: “ Library leaders looked for resources to sustain their digital libraries”.
6. Consulting: “ Academic library leaders using their professional expertise to engage in the development of information technologies”.



Respondents generally supported the education category that, “Professional development activities and education and training in online resources are among the strong suits of academic library leaders.” As one library association leader expressed it,

“They know that without personnel able to handle technology, all of the equipment in the world won’t improve access to information.”

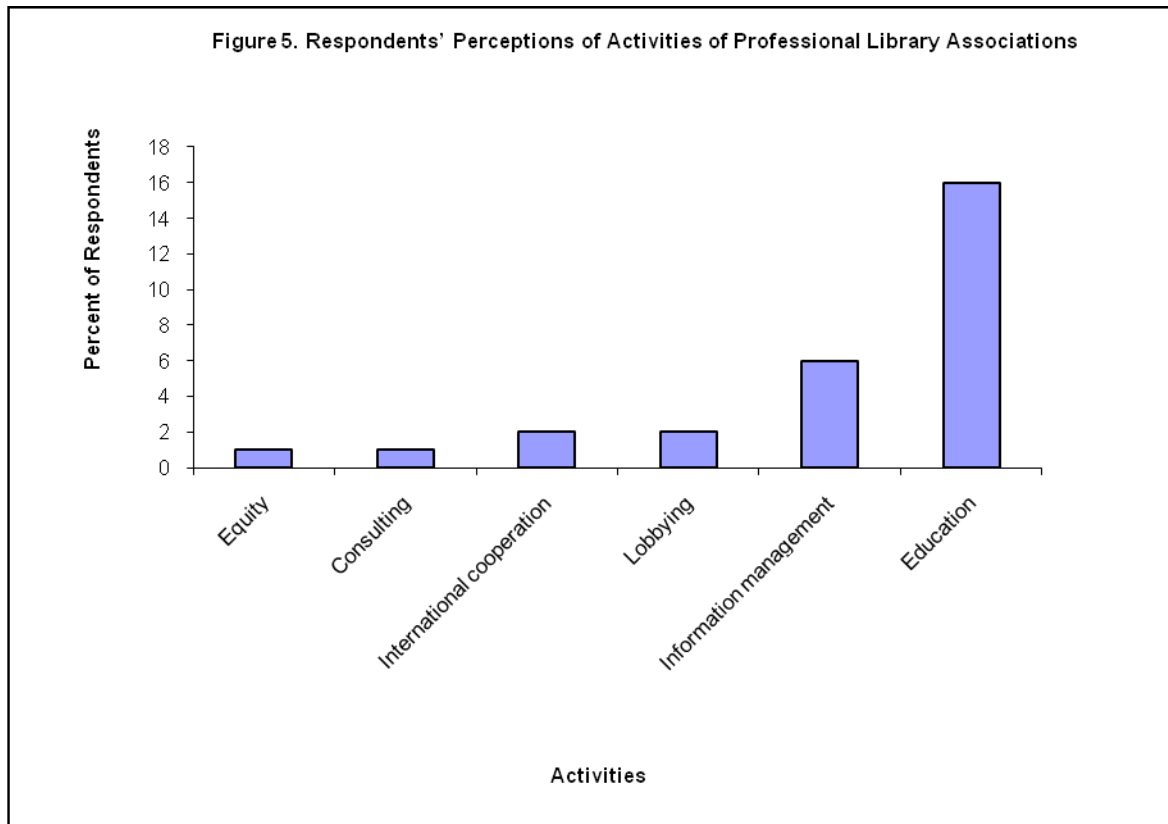
The academic library leaders were perceived by five library association leaders as, promoting new ideas regarding digitization and as influential in the planning and management of digital projects. A government agency official commented that, “Academic library leaders were very active promoting the importance of library services and the access they provide for research and for students of the country that is essential for them to be at the cutting edge of the development and use of technology.” Partnership arose again as an activity of academic library leaders as well as government agency officials.

Other activities cited by at least one respondent indicated that academic library leaders participating in advocacy were involved predominantly in promoting the debate around the best-case scenario for digitization. Some concern was expressed by one government agency official about “the need for members to engage more proactively in lobbying events and activities for the passage of favorable legislation.” One library association leader suggested, “Lobbying is difficult for the academic sector, because of the lack of dedicated spaces for the discussion of lobbying activities,” which they considered essential for effectiveness. Publishing, producing research that called for digitization and consulting were other activities cited as commonly pursued by academic library leaders.

Survey Question II-3 (SQII-3)

Activities of library association leaders were next surveyed in SQ II-3. Thirty-eight (31) or 66% of those who responded to the survey and all of those interviewed located 14 activities and six categories. The graph presented in Figure 5 depicts the categories that arose. The six categories included and examples of statements related to those categories are indicated:

1. Education: “Promotion of events intended to disseminate new knowledge among peers”. “Promotion of short term professional development activities”.
2. Information management: “Management of information resources”.
3. Lobbying: “Participation in the designing of policies”. “Promotion of the library presence in the society and political world”.
4. International cooperation: “To promote international liaisons”.
5. Consulting: “Consulting and advising government entities on cultural dissemination projects”.
6. Equity: “Engagement of professionals in social projects related to access to reading materials and information”.



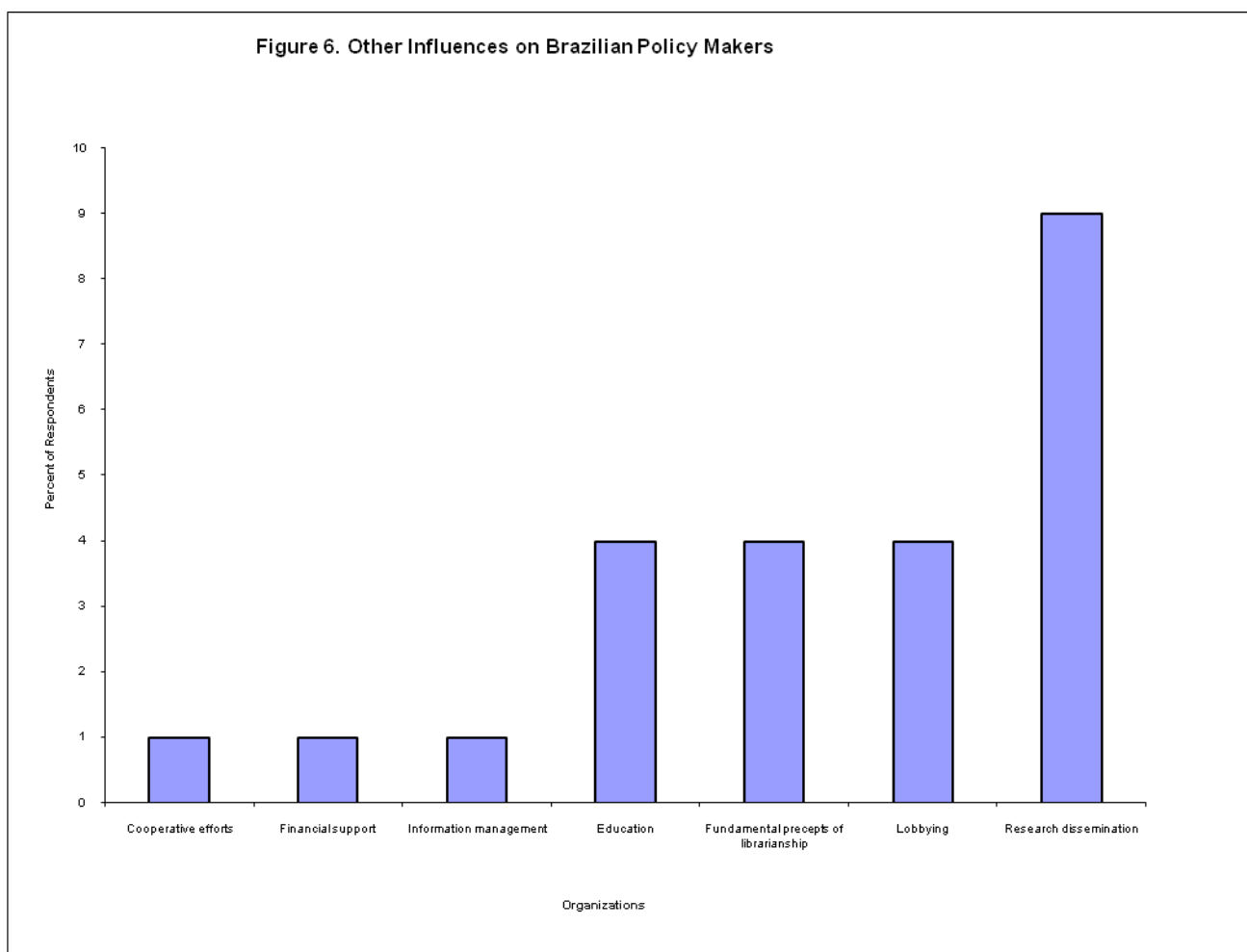
Government officials indicated that most association activities were related to education, particularly to education about equity and the promotion of access for all; professional development; communication; and networking with policymakers, the Congress and researchers. Information management relating to digitization was also perceived as an area of educational involvement. Digital information organization and dissemination and online resource promotion were noted by both academic library leaders and government agency officials as common to associations' forums for debate and discussion. One academic library leader pointed to the import of "association lobbying industry and the private sector for funding." She also pointed to their "development and promotion of both policy itself and online resources" and "establishing conferences with digitization as the primary focus and subject for debate and discussion."

International cooperation was listed for the first time as an activity in any of the three sectors. Consulting was added by one library association leader.

Survey Question II-4a (SQII4-a)

In response to SQ II-4a twenty-five or 53% of the survey participants indicated that other important influences existed. They listed those influences. They are illustrated in the graph found in Figure 6. The eleven influences cited centered on seven categories including. The seven categories included and examples of statements related to those categories are indicated:

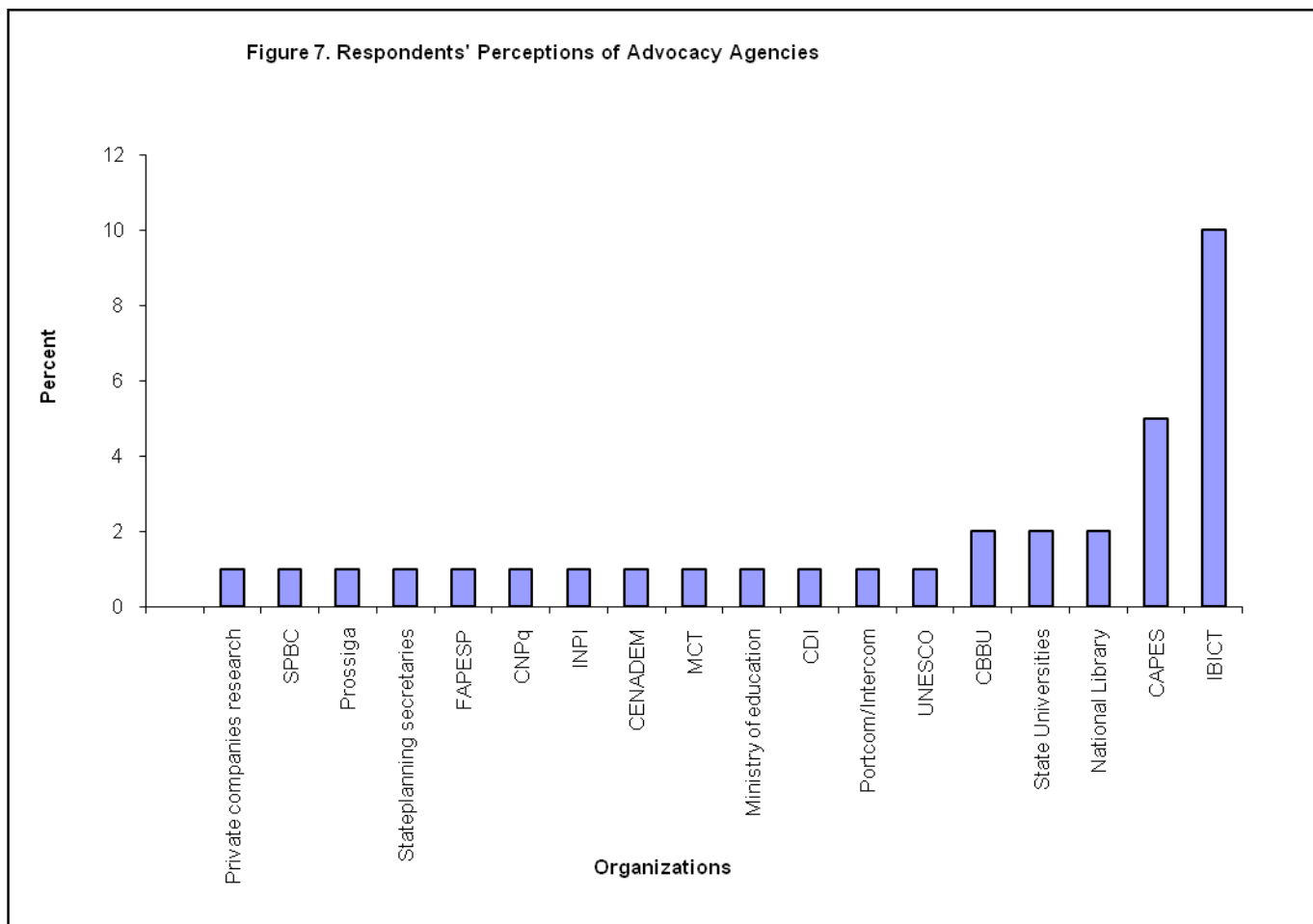
1. Research dissemination: “Dissemination of research through publications”.
“Implementation of projects”.
2. Lobbying: “Pressure on the ministries of education and science and technology authorities”.
3. Equity: “Promotion of unlimited and open electronic access to information holdings”. “Mandatory open access to theses and dissertations”.
4. Education:” Training”. “Promotion of professional development”.
5. Information management: “Coordination of searching paths”.
6. Financial support: “Financial support “. “ Salary negotiations”.
7. Cooperative efforts: “Organization of events intended to exchange professional expertise”. “Organization of common spaces for discussion”.



Most of the categories were elicited in response to earlier questions, among them: education, including training in the development and use of online resources and professional development; information management, particularly planning; financial support and cooperative efforts.

The new influence cited most frequently was about the dissemination of research information surrounding the development of digital projects. Lobbying, both group and individual, mentioned earlier also, took a prominent place as did equity. “Promotion of equity of access,” said one government official,” was the single most important influence.” When asked what organizations led the activities, twelve (12) survey

respondents or 26% replied. The responses, in contrast to the categories cited, were surprising. Eighteen (18) organizations were listed (See Figure 7).



Some were mentioned for the first time, such as the national library and the state university libraries. IBICT, the Brazilian Institute of Science and Technology, was cited most frequently. Also surprising was that the Ministry of Education was listed by only one respondent.

The agencies were noted by one government agency officials as influential because, “Funding made them recognizable to staff members and to the Congressmen themselves.” This gave them “the ability to promote digitization projects to the highest

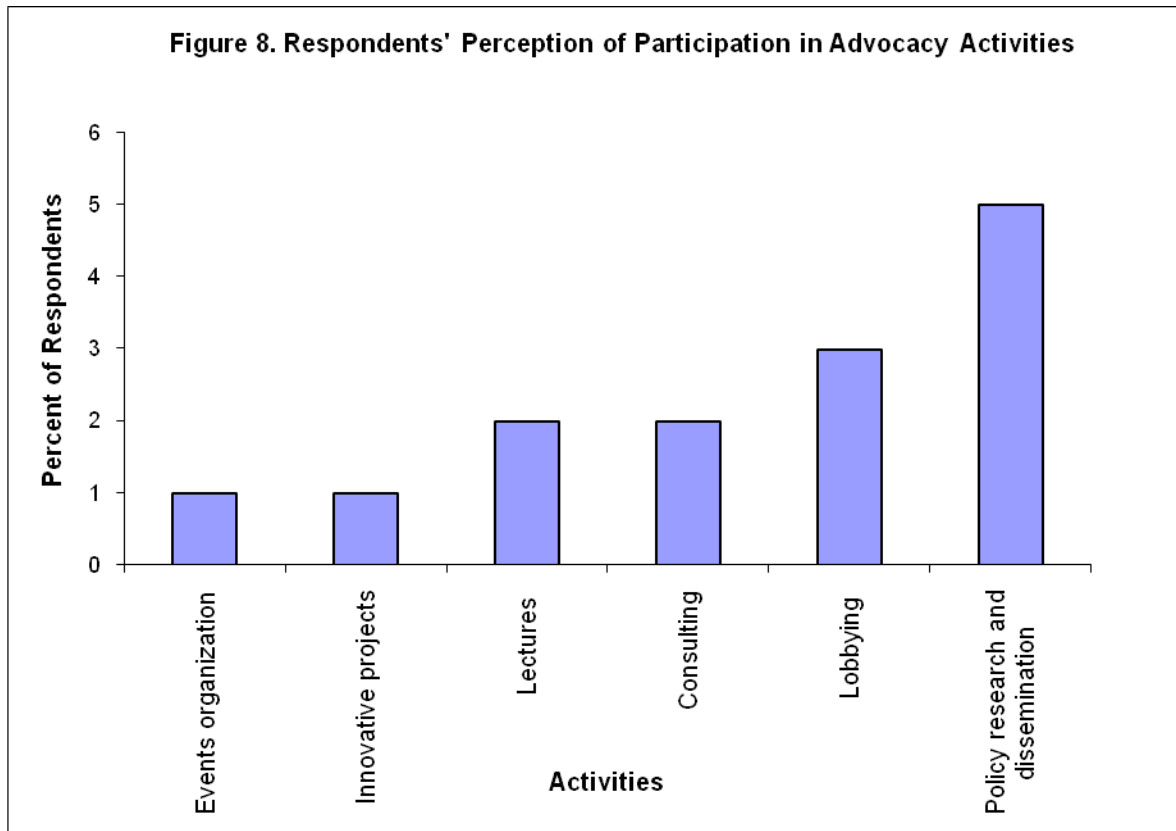
representative level of government.” Research and its dissemination, “opened the eyes of both government agency officials and the members of Congress about the importance of academic library digitization,” according to an academic library leader.

A library association leader suggested “The communities of knowledge, like the academy, were good at connecting with government policy makers, because of their in-depth knowledge of the issues relevant to the digitization of academic libraries.”

Survey Question III (SQIII)

SQIII asked respondents to the survey and all of those interviewed whether they had participated in advocacy and if they had, to describe their role in the activities. Twenty-six (26) or 55% of those surveyed and all of those interviewed responded affirmatively and listed what they had done. Seven major activities were cited, resulting in six categories, which are depicted in Figure 8. Categories and example statements are included:

1. Policy research dissemination: “Published research that promoted the importance of digital information and the library”.
2. Lobbying: “Lobbied for open access to a specific database in CAPES”.
3. Consulting: “I participated in meetings to promote access and digital libraries”. “I was consultant for the BDB”.
4. Lecturing: “Taught information searching”.
5. Initiating innovative projects: “Developed projects with CNPq”. “First librarian to work with Virtual library projects”.
6. Events’ organization: “Organized events and meetings on public information policies”.



Lobbying and applying pressure on legislators were at the top of the list. One library association leader replied that, “the main advocacy activity performed by all of the groups being studied was lobbying.” In fact, advocacy and lobbying were synonymous activities to many leaders. “There is no broad definition in Brazil of what constitutes advocacy,” responded one government agency official. The dissemination of policy research was cited as frequently as lobbying. Government agency officials agreed that it was through the results of policy research, funded by the government, that Congress “first came to recognize the interest and work in digitization done in library and information science.” Lectures and talks were also listed, resulting from presentations made on research results, which one academic library leader indicated, “contained actions and

research for the future and became a blueprint for the Congress in many instances.” Opportunities for consulting eventuated from the research as well.

This data indicated participation in a limited number of advocacy activities by a limited number of participants who were selected because they were considered influentials in the professional groups under study. The opportunities and types of activities for involvement in advocacy need to be made better known. While the percent of respondents who replied demonstrated that advocacy was alive, close to half of the respondents did not indicate that they participated. There is a large audience still available to assist in advocacy to make the digital needs of the library and information science community better known to the Congress. They need to be activated.

Survey Question IV (SQIV)

SQIV investigated the elements of an advocacy campaign that were in place when information legislation and policy favorable to academic library digitization was enacted. This question addressed two aspects. First, the respondents’ awareness of advocacy elements or tools, such as editorials, email campaigns, letter writing, creation of pressure groups, use of television interviews, personal lobbying, organized group lobbying, congressional testimonies, press conferences, Op Ed pieces, and the influence of opinion leaders. Second, the question also gathered data on the advocacy elements that ranked higher in terms of their importance to the success of the campaign.

Twenty-five survey respondents (25) or 53% answered this question. All eleven advocacy elements were chosen. The option to mark “other” was selected only four times. Each of the four elements added was noted by one respondent only. They

included: letters to government agency officials, verbal communication with library leaders and academic class discussions of policy tools. These were among the least important when the tally was conducted for the most important campaign elements, since they were recommended only once. Among the most highly ranked elements of an advocacy campaign (see Table 8), five were most usually ranked on the top 5. Those elements were “organized group lobbying” (OGL), “congressional testimony” (CT),

Table 8. Elements of an Advocacy Campaign

Elements	Frequency Selected	Percentage of Respondents who ranked item in Top 5
Editorials	14	56%
Email Campaign	15	60%
Letter Writing	16	64%
Creation of Pressure Group	16	64%
TV Interviews	18	78%
Personal Lobbying	19	76%
Organized Group Lobbying	20	83%
Congressional Testimony	21	84%
Press Conference	22	88%
OpEd Piece	22	88%
Opinion Leaders	22	88%

“press conference” (PC), “OpEd piece” (OP), “opinion leaders” (OL).

At the other extreme the advocacy campaign elements ranked less often in the top five were “letter writing” (L), “editorials” (ED), and “email campaign” (EC). The higher power of influence by opinion leaders and organized group lobbying indicates the importance of organized leadership that is coordinated, collaborative and used to create advocacy groups that become pressure tools.

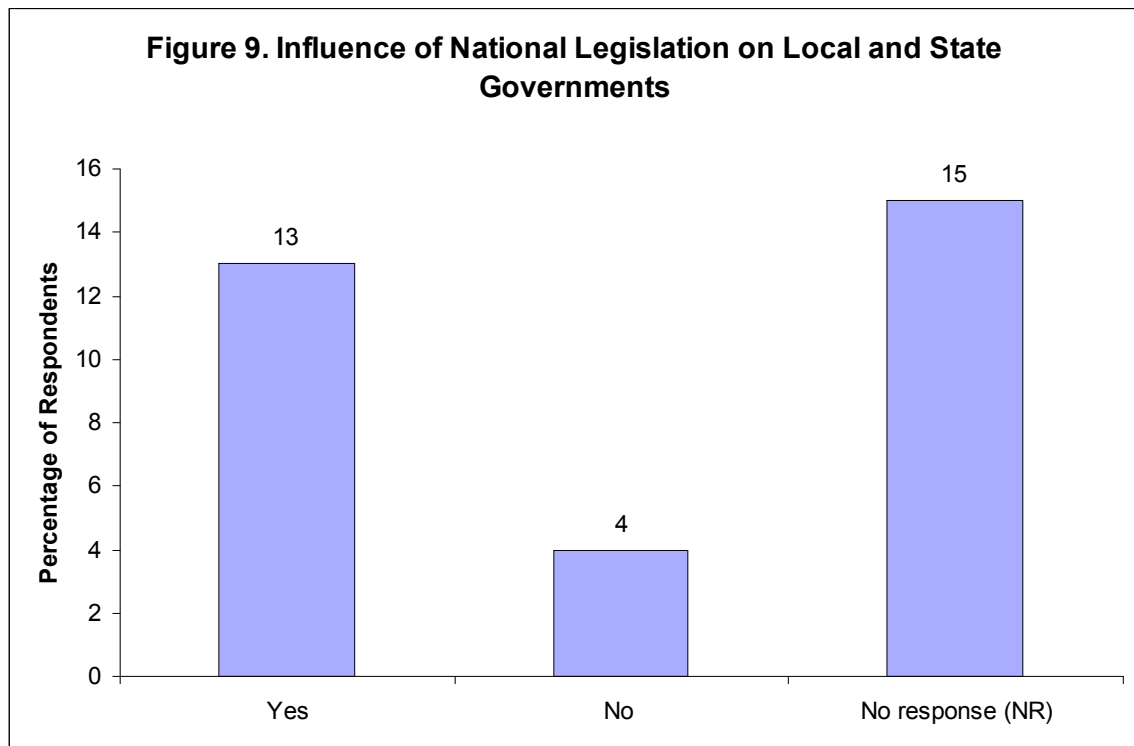
Table 9. Frequency of Ranking of Elements of Advocacy Campaign

Elements of an advocacy campaign	Ranked 1	Ranked 2	Ranked 3	Ranked 4	Ranked 5	Total
Editorials	3	3	1	5	2	14
Email campaign	6	2	1	2	4	15
Letter writing	2	4	2	2	6	16
Creation of pressure group	3	3	4	2	4	16
Tv interviews	3	1	3	5	6	18
Personal lobbying	6	2	3	4	4	19
Organized group lobbying	9	3	3	3	2	20
Congressional testimony	6	0	5	4	6	21
Press Conference	7	3	4	6	2	22
OpEd piece	5	5	5	3	4	22
Opinion leaders	9	8	1	1	3	22

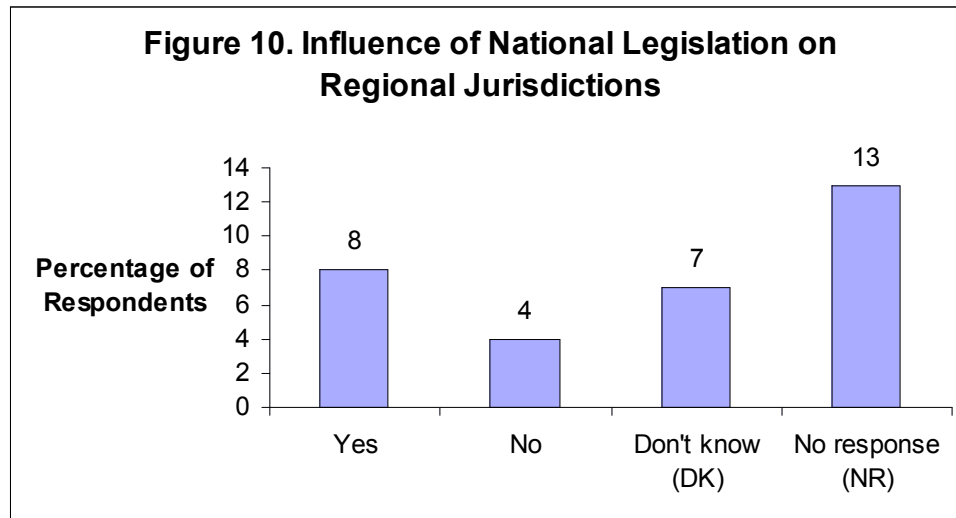
The results indicate that, first, there was a high level of awareness of advocacy elements among the study participants. Few of the respondents left blank spaces when making their choices of elements of an advocacy campaign. In addition, the frequency of ranked elements of advocacy (see table 9) has repercussions for any attempt to employ the tools of advocacy campaigns in promoting the digitization of academic libraries. It indicates the tools that are more often considered when using advocacy to promote legislation and policy favorable to academic library digitization. Third, the results point out the presence of opinion leaders, use of OpEd pieces, and press conferences the most highly valuable advocacy elements, increasing the contribution of leadership and other lobbying tools as major forces affecting the successful implementation of policies regarding the digitization of academic libraries. These findings suggest the presence of high ranked advocacy tools in the plan for and enactment of advocacy campaigns.

Survey Question V (SQV)

SQV investigated whether national Brazilian legislation and policy influenced legislation within the country in other jurisdictions. SQV-a, addressed whether that legislation and policy influenced local or state government. It was answered by 32 or 74% of the participants in the survey and all of those interviewed (See Figure 9). Thirteen (13) or 41% of those surveyed answered affirmatively; four (4) or 13% answered negatively; and fifteen (15) or 46% did not respond.



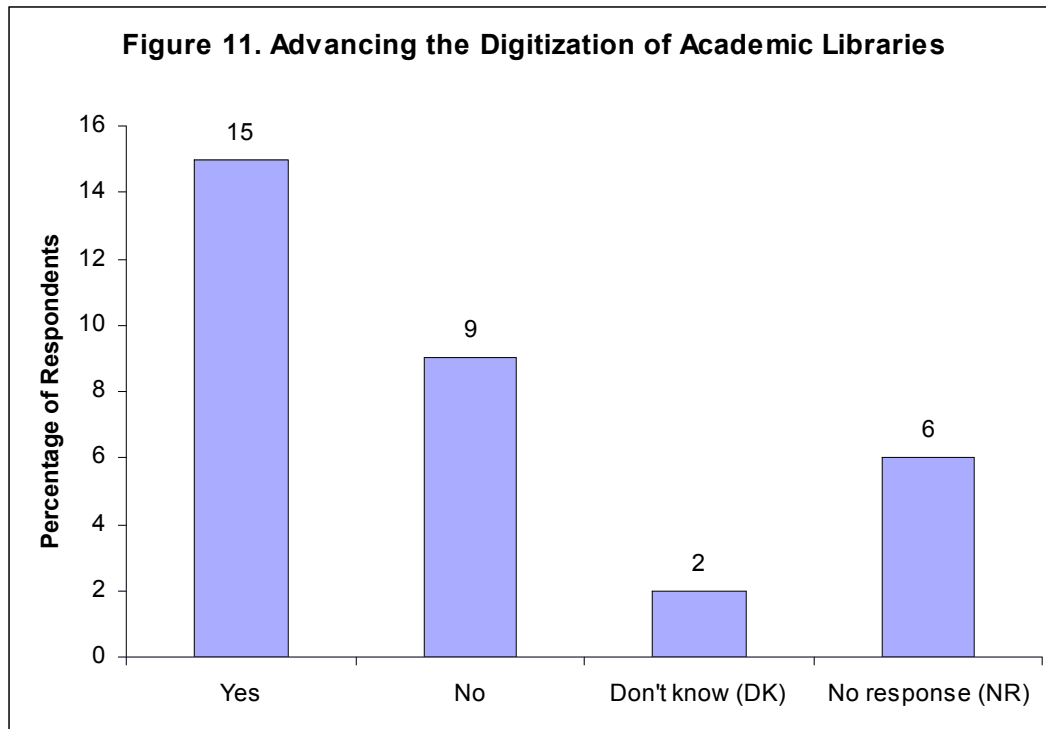
SQ V-b asked a similar question of the same audiences —whether national Brazilian legislation and policy served as an influence—this time at the level of the regional jurisdictions (See Figure 10). Answered again by thirty-two (32) or 74% of the 47 survey participants and all of those interviewed, 25% held the perception that it had served as an influence, while four (4) (13%) did not and more than a majority twenty (20) or 62% either did not answer the question or indicated that they didn't know. “This high percentage of no responses leaves interpretation of this item difficult. Combining the percentages of No, Don't Know and No Response totals 75%, far more than the number that responded in the affirmative.



The results in both instances indicate that national legislation has had some influence on information legislation at the local and state levels, but the high number of no responses suggests that there is limited knowledge and awareness of the usefulness of what has been put in place nationally that would be useful for local, state and regional entities. This is likely due to the lack of promotion of these policies. They have as yet not been adequately discussed across the nation. It also suggests that making these policies more visible is the key.

Survey Question V-c (SQV-c)

The responses to survey question SQ V-c, asking whether national legislation advanced the digitization of academic libraries, were overwhelmingly positive (See Figure 11). Again there were 32 respondents. This time fifteen (15) or 47% responded with the perception that Brazilian national legislation and policies had advanced digitization of academic libraries, while nine (9) or 19% indicated that it had not. Eight (8) or 25% opted for no response or indicating they did not know.



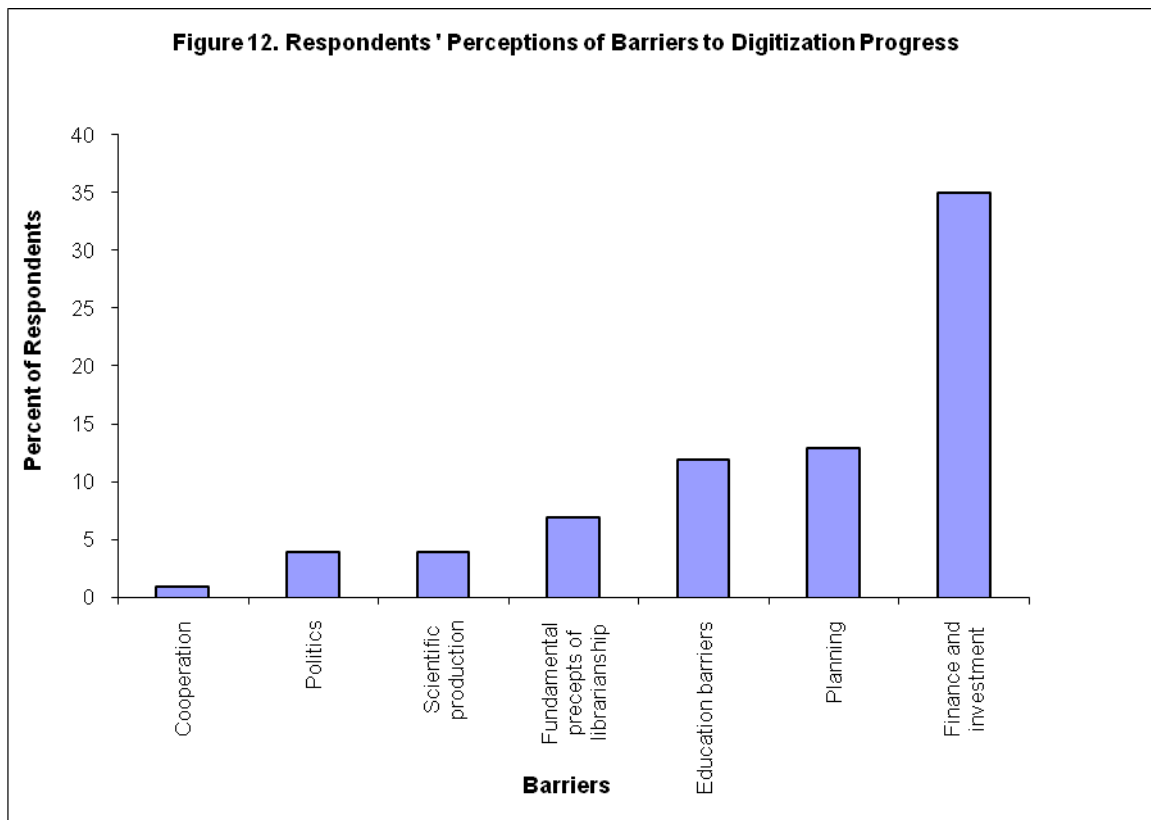
The level of affirmative answers uncovered, although less than a majority, suggests that the perception is a success story for the academic sector. It also suggests that even though the awareness of the usefulness of policies and legislation enacted at the national level for other levels of government may fluctuate, there is a majority perception that a general set of strategies encompassing the digitization of academic libraries already exists. These findings have importance for this research because they imply that the delineation of the categories and elements that comprise a model would further advance digitization.

Survey Question VI (SQ VI)

When SQ VI and the interviews addressed the barriers hindering progress in advancing digitization, thirty-one (31) respondents, or 72%, of those surveyed together

with those interviewed named a total of thirteen barriers that centered on seven categories (See Figure 12), including:

1. Finance: “Financial barriers for retrospective digitization”. “Lower taxes to digital equipment to enhance access”.
2. Planning: “Lack of quality on the current infrastructure”. “Lack of vision on the part of CAPES, CNPq, academic, and public libraries).
3. Education: “Lack of perception on producers of knowledge about the importance of facilitating digital access to materials”. “Better human resources to feel the digitization needs”.
4. Fundamental precepts of librarianship: “ Lack of understanding of copyright”
5. Politics: “Lack of political consciousness on the government organizations and legislators regarding the importance of information for the scientific, technological, social, and cultural development of the nation”.
6. Scientific production: “Overestimation of American scientific production”.
7. Cooperation: “Cooperation between public and private institutions”.



Most identified categories were related to the inadequacy of the infrastructure, particularly communication lines and hardware (“North region is lacking behind on adequate infrastructure”), to advance digitization and financial barriers that prevented improvement in that infrastructure. One academic library and one library association leaders agreed that lack of planning for the continuing development of digitization and lack of educated skilled human resources, were the most prevalent barriers. “Insufficient attention to access, a fundamental precept of librarianship, resulted in a lack of equity for all of the Brazilian people,” a government agency leader noted. Barriers outside the profession are those elements that do not pertain to the main constructs of librarianship such as political positions and agendas. This question identified the resistance to change on the part of politicians, their unwillingness to add digitization to their agendas for

action and the existence of political lobbies that did not favor or help progress to continue.

Underestimation of Brazilian scientific production and the overestimation of American scientific production were brought out in the questioning. The overestimation of the American scientific production suggests a need for relevant Brazilian scientific knowledge to be disseminated digitally. The need for developing nations to have scientific and technical information relevant to their country's production of knowledge available on national digital systems instead of reliance singularly on digital data bases built on the scientific production of developed countries became apparent.

Comments came from a negative viewpoint. One government agency official articulated the concern of many others when indicating that, "There is no Brazilian policy for information in general, but rather there is an attempt to make more national and generalized programs like the ISP, which originally focused on the academic library alone." A library researcher agreed and shared the perception that, "Actions towards information policy in Brazil are mostly dispersed and extremely focused on the technological side without taking into consideration the contents and contexts from which the information originated." Another center of agreement gathered around the statement of one academic library leader's perception that, "Politicians are still not completely aware of the extensive need for a focus on the development of digital information."

Not surprisingly there was a call for a "national information management model oriented towards the American model," which posits another type of barrier for the initiation in Brazil of information management responsive to the context of their own country

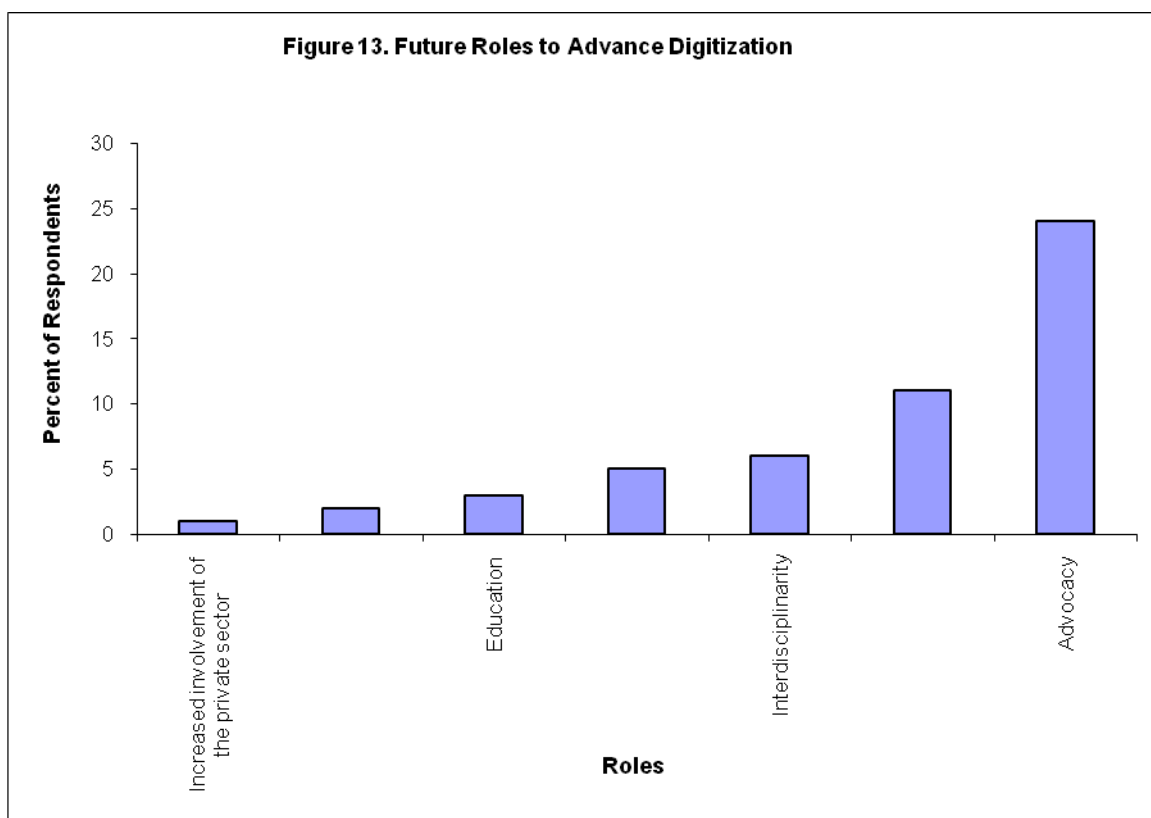
One library association leader suggested a barrier when she said, “The role of government officials is unknown to us. They tend to make their own decisions.” Criticism came from library association leaders themselves about “the disconnection between the associations’ activities and the need for a strong priority for action on digital information policy.” Library association leaders were also critical of “the lack of resources for lobbying available and the slowness to action on the part of the associations.”

The barriers indicated by the data make it clear that it is not enough to advocate for digitization. Its growth requires adequate financing; an infrastructure advanced enough to handle digitization and human resources with sufficient skill to utilize the products of digitization. Lack of the level of cooperation needed for continued advancement was also highlighted. The role of external barriers must be underscored. The case of Brazil suggests that the most important and challenging barriers now are those that can relate to government policies, that is, the need for more investment in the digitization of academic libraries and the need for that investment to result in better infrastructure for digitization.

Survey Question VII

SQ VII and the interviews addressed the perceptions of respondents about the future roles that must be played to advance digitization. Thirty-two (32) or 74% of the survey respondents and all of those interviewed uncovered sixteen roles that were identified as one of six categories listed (See Figure 13). The categories were:

1. Advocacy: “Understanding of the importance of digitization to improve access”. “ More lobbying to the authorities”
2. Fundamental precepts of librarianship: “Constant availability of digital resources”. “Better definition of public policies regarding access to information”.
3. Interdisciplinary: “Development teams should be multidisciplinary”.
“Cooperative work” “ Libraries should participate in operational and political decisions regarding digitization”.
4. Education: “User’s training”. “Professors in schools and universities who promote among citizen awareness about the need to digitize information”.
“Universities should privilege research in the area of digitization”.
5. Finance: “Government leaders who legislate for less taxes to the telecommunication sector.” “Better financing by the government for building electronic repositories”. “ Reduction of the technological cost”
6. Increased involvement of the private sector: “ Increasing training and presence of private institutions with less operational costs”.



Advocacy roles for more library leaders and library supporters headed the list. Lobbying and education, including the promotions of distance education and training in the use and development of digital data were cited as vitally needed. One government agency official voiced the oft held position that, “Benchmarks and standards are essential to create targets for performance in the digital environment that make it possible to explain the positive results of the government’s support for digitization.” Both access and digital copyright issues came up as providing roles for all three sectors under investigation.

Academic library leaders introduced the idea of interdisciplinary, which one of their members said, “brought roles for those with interests in digitization who are outside the profession, particularly in the development of better technology for the

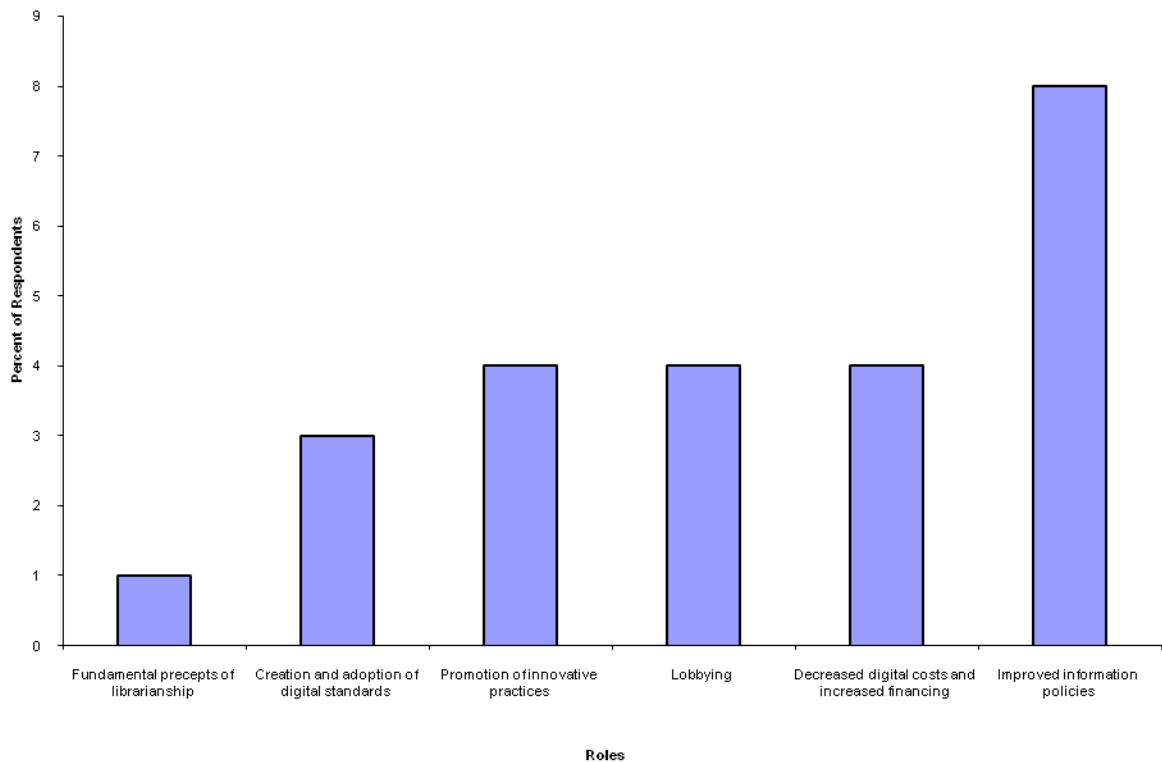
infrastructure.” A new concept arose around the roles available to the private sector. As one library association leader put it, “The private sector can contribute to the development of research that would be useful to all types of libraries.”

Survey Question VII-a (SQVII-a)

SQ VII-a asked respondents to the survey and those interviewed what the future advocacy role of government officials was. Thirty-seven (37) survey respondents answered the question or 78%, who indicated twelve (12) activities and six identifiable categories and their examples (See Figure 14):

1. Improved information policies: “The government officials should widen the scope of current legislation regarding access to online theses and dissertations”.
2. Decreased digital costs and increased financing: “Reduce costs through the reorganization of already existing digital holdings”
3. Lobbying: “To increase legislators and politicians knowledge on digital information”.
4. Innovative practices: “To elaborate innovative proposals”. “ to promote initiatives”.
5. Creation and adoption of digital standards: “To create tools for measuring use of digital resources”. “To adopt digital benchmarks and standards”.
6. Fundamental precepts of librarianship: “To help disseminate knowledge at a national level”.

Figure 14. Respondents' Perceptions of Future Advocacy Roles of Government Officials



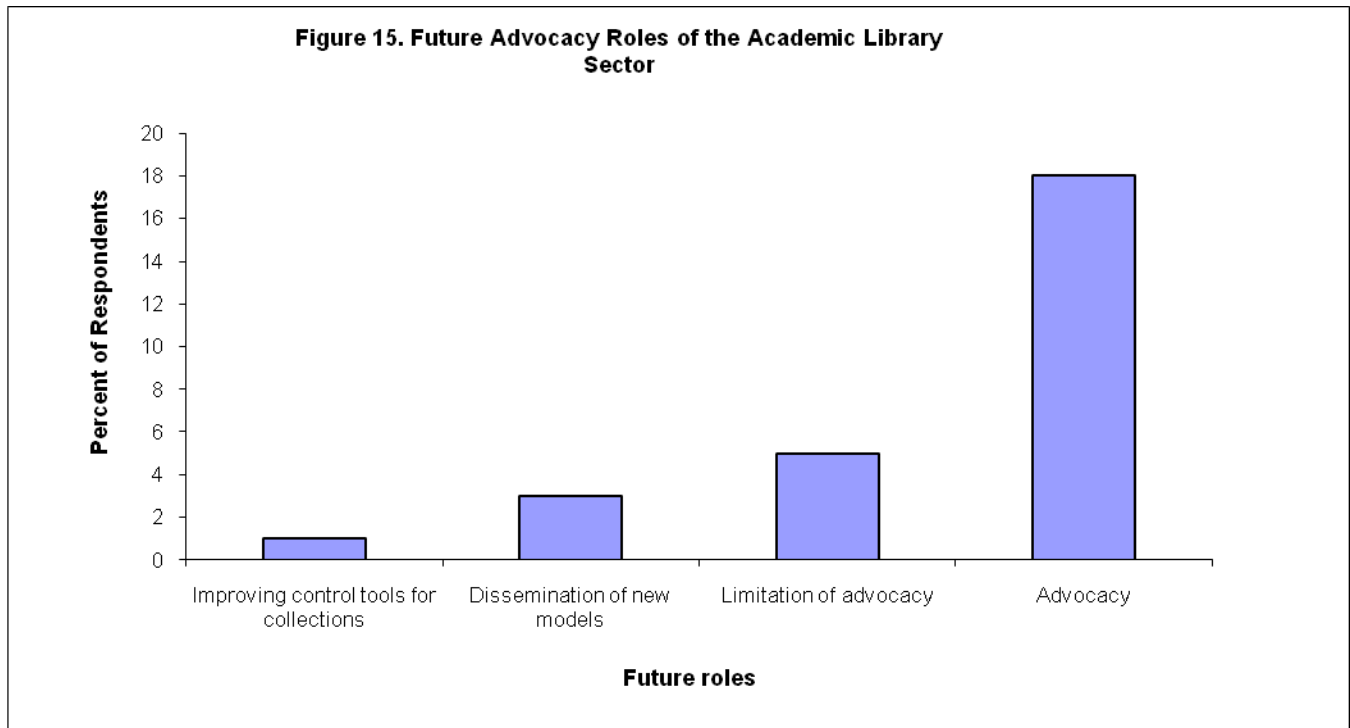
Leading the categories based on the agreement of the respondents from all three sectors under study was the need to advocate for, as one library association leader put it, “better planning, which would lead in turn to improved information policies.” Second, academic library leaders showed interest in advocacy that promoted “decreased digital costs and more financial support from the federal government,” highlighting the need for government officials to advocate for a reduction of digital infrastructure costs. Another government agency official suggested for herself and others that, “Lobbying politicians and legislators for more favorable information policies regarding digitization is our most needed role.” The fourth category suggested promotion of innovative practices, “that would keep academic digitization at the cutting edge in the knowledge and use of

technology. The need for government officials to advocate for the creation and adoption of digital standards appeared across all sectors. Finally, digital information dissemination and access were suggested as “the most important advocacy role for the officials because of the lasting importance of the fundamental precepts of librarianship to service for all.”

Survey Question VII-b (SQVII-b)

SQVII-b and the interview questions addressed the future advocacy role of the Brazilian academic sector. Twenty-two (22) respondents to the survey or 47% and all of those interviewed answered by indicating twelve (10) activities comprising four (4) categories, including:

1. Advocacy: “Academic libraries will get more power of influence when organized in bigger groups and associations”.
2. Limitation of advocacy: “The academic library sector has very little power to influence”.
3. Dissemination of new models: “Academic libraries will create new models due to having adequate professionals and freedom in the creation of new products and services”. “Academic libraries need to promote new models of rational use for people and technologies”.
4. Improving control tools for collections (See Figure 15): “Academic libraries will create and impose patrons for archiving and maintenance of digital documents”.



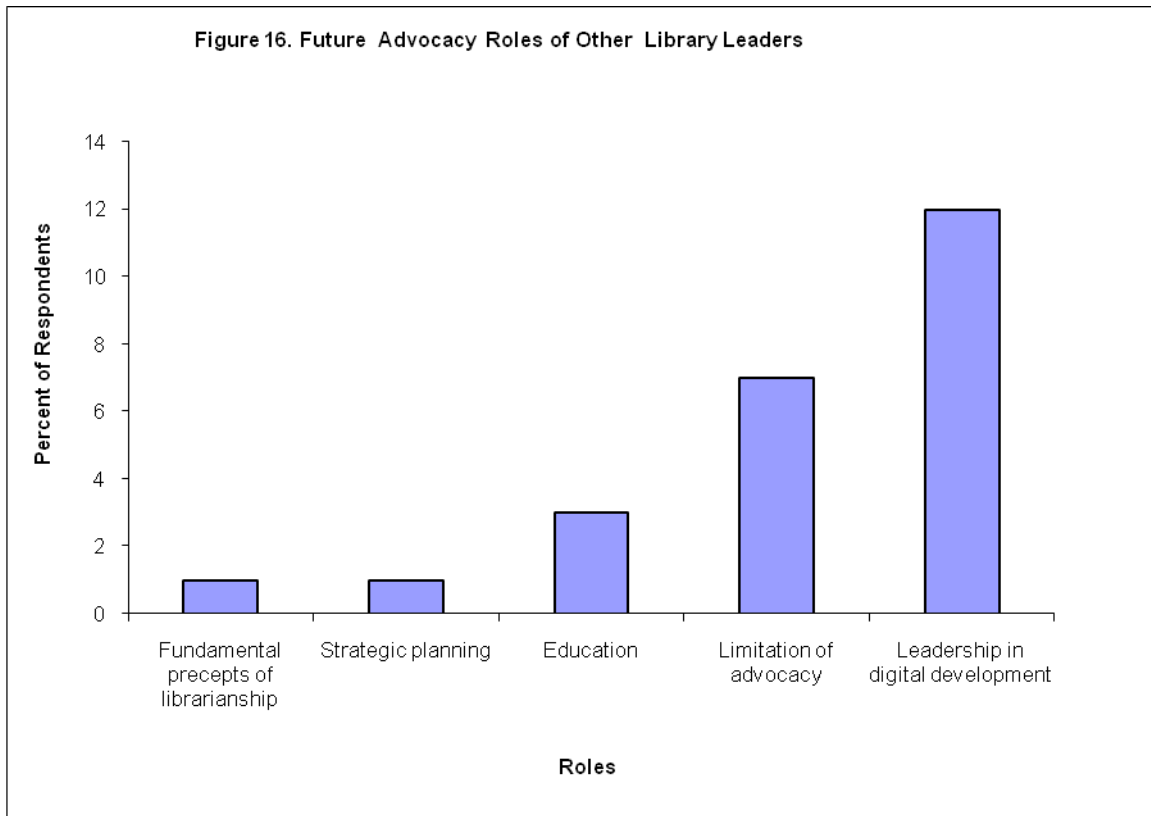
The categories were overwhelmingly in favor of more advocacy for distance education, as well as professional development and training in the use of digital resources and digital development. Promotion of “research and development was crucial to the long term viability of Brazilian Higher Education,” according to a government agency official as was “the dissemination of new models of digitization.” Noted also was the need for the academic sector to advocate for “the promotion of political dialog, benchmarks and standards that allowed for evaluation of the outcomes of digitization” and “leadership.” There was a clear understanding of the potential of the academic sector as an advocacy force for digitization. In spite of a certain pessimism about whether the profession should be involved at all in advocacy, “particularly lobbying national legislation and policy makers,” as an academic library leader noted, there was “a general awareness that research and development in the area of digitization of academic libraries

helped the academic sector become visible and powerful enough to remain a vibrant advocacy force.”

Survey Question VII-c (SQVII-c)

SQ VII-c and the interview questions addressed the future advocacy roles of other library leaders? Twenty-five (25) survey respondents or 53% and all of those interviewed suggested eleven activities with five categories as follows:

1. Leadership in digital development: “Library leaders should train to work in the current context of digital information”. “Library leaders need to exert a huge amount of lobbying”.
2. Limitation of advocacy: “Library leaders have little power to influence decisions”. “Library leaders are losing field for not being dynamic enough”.
3. Education: “Library leaders should incentive their users to make more use of digital tools”.
4. Strategic planning: “Library leaders should be involved in the design of public access policies”.
5. Fundamental precepts of librarianship (See Figure 16). “Library leaders should promote the creation of open archives”.

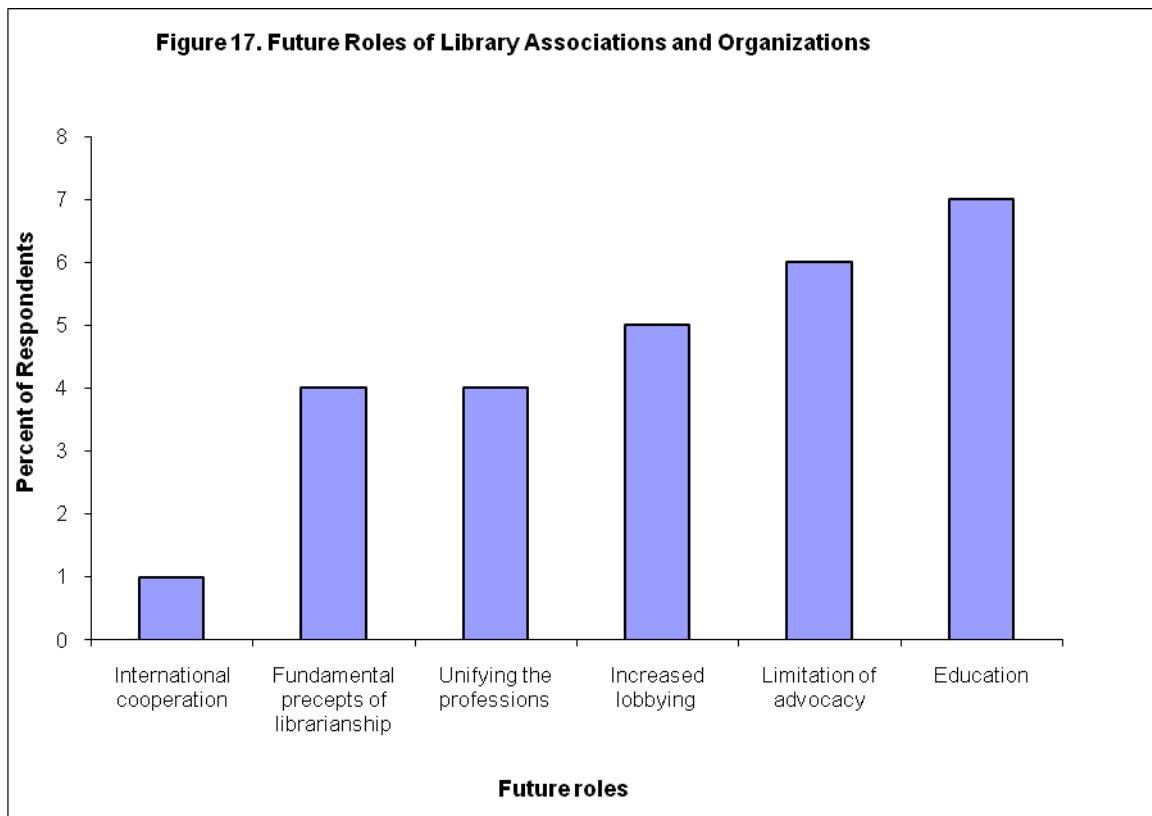


The leadership suggested by the respondents was composed of, “a constant dialog with entities outside the sphere of librarianship.” Cooperation and coordination of professional efforts, and the creation of new digital tools also constituted the leadership role along with more research and development dissemination. The categories indicate that the perceptions of library leaders’ future roles are diverse and intended mainly to combat isolation of efforts when building and promoting digitization of academic libraries. In addition, the same perceptions suggest that dialog and communication with organizations, groups and enterprises (private or public) outside of the library world is absolutely necessary. The idea of limitations put on advocacy appeared again, making advocacy an area of professional conflict.

Survey Question VII-d (SQVII-d)

SQVII-d and the interview questions addressed the respondents' perceptions of the future advocacy roles of library association and organizations. Twenty-four (24) survey respondents or 51% and all of those interviewed noted 13 roles with six categories, including:

1. Education: "Associations and library groups will promote events to increase education in digitization for library and information science professionals".
2. Limitation of advocacy: " Association movements in Brazil are very weak".
3. Increased lobbying: " In spite of the associations' weaknesses they should try to influence decisions".
4. Unifying the professions: " Library associations and organizations should promote the mobilization of professionals to exert pressure on the government".
5. Fundamentals precepts of librarianship: " They should promote the debate on infrastructure and information resources".
6. International cooperation (See figure 17). " They should promote international cooperation".



Education appeared once again at the top of the list as a candidate for future advocacy. The desired limitation of advocacy, here seen in juxtaposition to a desire for increased lobbying, suggests for future research an examination of the apparent quandary among some over the extent of political involvement of the profession. Among those favoring increased lobbying suggested areas needing this attention were promoting improved infrastructure, that as one library association leader put it, “would make or break digitization as an economic force for Brazil in the 21st century.” Promoting viable information policies and innovative initiatives were also suggested as a focus for advocacy.

An academic library leader suggested that, “Library associations are becoming more organized as time passes, therefore, in the future they will have greater influence on

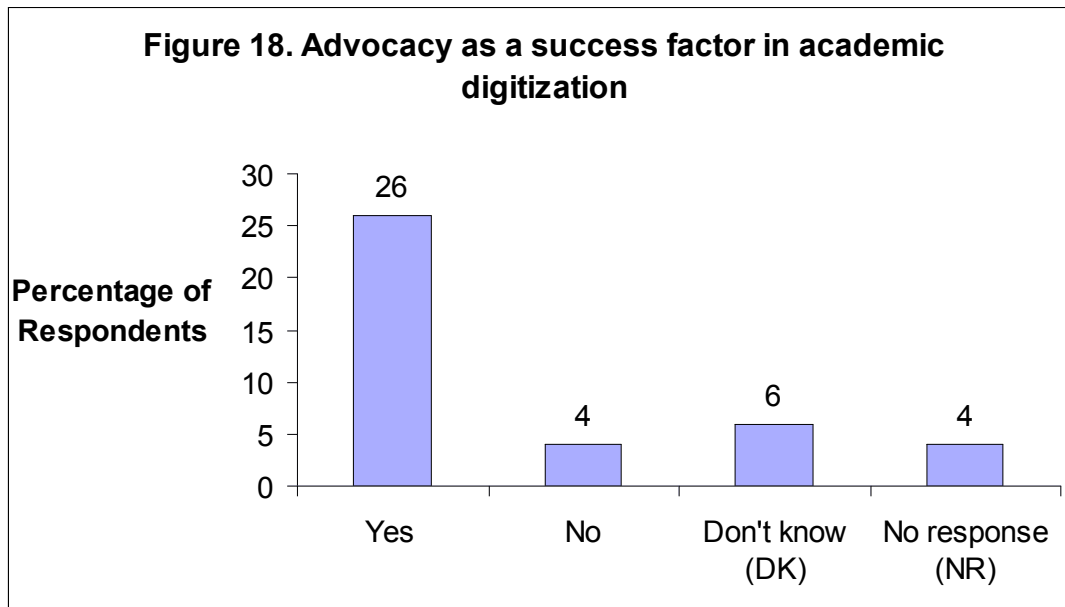
the decision makers and more power to bring about favorable legislation and policy for academic digitization.”

For the first time, unifying the profession was seen as an important locus for advocacy for its ability to, “create a stronger voice for library digitization among decision makers,” as an academic library leader maintained. The fundamental precepts of librarianship, especially equity was perceived as an area in which library association leaders should create a priority. International cooperation was raised for only the second time as “a vital focus for advocacy on the part of library association leaders,” leading to the implication that the necessity for involvement in digitization with an international scope was not an issue that entered into digital development until each nation had a firm footing in its own digital directions.

Survey Question VIII (SQVIII)

The final question SQVIII and the interviews addressed whether the respondents believed that advocacy by the three groups under study was a factor in the successful enactment of academic digitization. Figure 18 shows that forty (40) or 85% of the survey participants responded. All of those interviewed responded to this issue. Twenty-six (26) or 55% indicated that it did, while only four (4) or 9% took the opposite view point and ten (10) or 21% replied that they either didn’t know or gave no response.

It is clear from these that advocacy is perceived as a potent success force. The inclusion of government agency officials as one of the groups under study in this research and their apparent role in digitization advocacy supports the ACF theory, which introduced government agency officials to the equation as a prominent success factor in undertakings



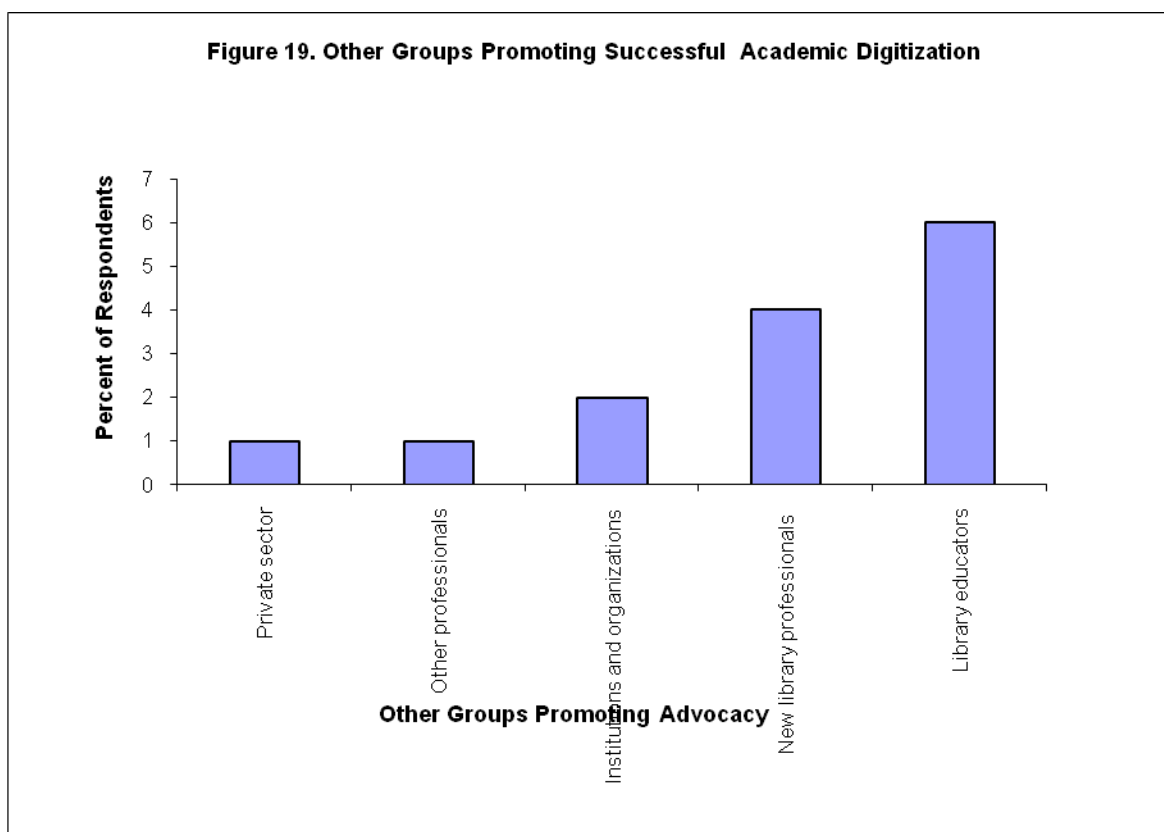
that required funding and support of decision makers at the highest levels of leaderships, in this case the members of Congress. As a government agency official stated, “We considered it within the most significant roles that we had in the library community to bring to the attention of the Congress on every possible occasion the need for and the success of academic library digitization projects which they had funded.” This research disproved Burger’s contention that digitization is undertaken without consideration for equity of access. In this case, equity appeared repeatedly as one of the sought after results of digitizing information.

Each of the other two groups under study rated advocacy as the highest element in the ultimate success in academic digitization. One academic library leader posited that, “Without advocacy at every level—from library workers to national decision makers—academic libraries would have remained in the early twentieth century with little hope of progressing into the Information Age of computerization.” A library association leader

added to the strength of advocacy as an essential force in academic digitization by stating, “It became a unifying force among all types of libraries with each believing that if digitization was successfully accomplished in academic libraries it would not be far behind for them.”

Those responding to SQVIII also added through interviews five other groups that promoted successful digitization (see Figure 19). They include:

1. Library educators
2. New library professionals
3. Institutions and organizations
4. Other professionals
5. The private sector



It was unexpected that library educators would appear with such strength as one of the groups promoting successful academic digitization at a point this late in the research. But given the importance of several elements repeated through the research, including research and its dissemination; the production and dissemination of new and innovative digitization models; education in the skills required to develop and use digital products; the improvement of practice; the fundamental precepts of librarianship; and the necessity of building models favorable to promoting Brazilian scientific production, the interdependence between the field and the university becomes eminently more understandable. It is re-enforced by the second group found to promote successful digitization, that is, the new professionals. According to one library association leader, who spoke a category articulated by others in different ways, “It is the new librarians, just

out of higher education programs that are the most passionate proponents for advocacy academic digitization. They have come to the field with the fire needed to ensure advocacy will continue the struggle for progress in digital information and its critical place in national and international economic leadership.”

Government agency officials added institutions and organizations outside librarianship as promoters as well. One said, “It is the coalitions formed of advocates that made lobbying Congress more successful. They increased our numbers and added to our influence.” The inclusion of other professions carried out this category and, as an academic library leader enthused, “Leaders from outside the profession, but favorable to our cause, strengthen our position, making alliances as important in our success as any leaders within librarianship.” The private sector was noted again as one of the avenues that assisted with their own research and production and dissemination of successful innovative projects. As another academic library leader stated, “The private sector contributed to our success on any occasion that they became involved with our digitization.”

Summary of the Findings

In summary, fourteen categories, including seven barriers to overcome were found across all of the survey questions and interviews, indicating their importance as categories in a model for the advancement of digitization of academic libraries in developing countries. They were in order of the frequency with which they were cited:

1. Lobbying, both group and individual;
2. Education in all of its forms from programs for the first professional degree, to professional development and training;

3. Increased financial support and investment on the part of the federal government;
4. Support for the fundamental precepts of librarianship, with a particularly strong emphasis on equity of access to digital information and a balance in intellectual property rights that maintains the people's access;
5. The improvement of practice through progress in digitization;
6. Greater encouragement of involvement on the part of the private sector, and professions outside librarianship, which bring their influence with the Congress;
7. Leadership in the international as well as national promotion of digitization;
8. Cooperation and partnerships that unify the profession and activate coalitions and alliance with like minded individuals and groups both inside and outside the profession;
9. Management of digital resources and collections with a focus on planning, particularly strategic planning, on the part of all sectors;
10. The promotion of research and policy along with the widespread dissemination of new models and the broad scale diffusion of innovative projects;
11. Enhanced knowledge of existing models for emulation and the awareness of the usefulness of national legislation and policy at the local, state and regional jurisdiction;

12. The relationship between the current global economy and the role digitization can play in staking a place for a nation in it that is profitable and meets the international challenge to continued national economic growth;
13. Societal pressures to remain competitive and the need it brings for modernization; and, finally,
14. The importance of the seeking the involvement of other professionals within librarianship, particularly new library professionals and, most important, library educators.

Beyond these categories the need for developing nations to have scientific and technical information relevant to their country's production of knowledge available on national digital systems instead of reliance singularly on digital data bases built on the scientific production of developed countries became obvious.

Other general findings were made apparent in this research. The electronic marketplace and its effect on the growth of the nation's economy were affirmed as significant in the development of academic digitization. Economic development pressures and potentials were uncovered as private sector behind the scene influences on Congress that contributed to the establishment of digital initiatives. The academic sector, government agency officials and library associations, all within the nonprofit sector, proved to be another major impetus.

While access grew and continues to grow, significant differences in equity can be found not only between developing countries and global posers, but also among the developing countries. Disparities exist and are getting wider within developing countries as well. In general, this research suggests that the resolution of the issues surrounding

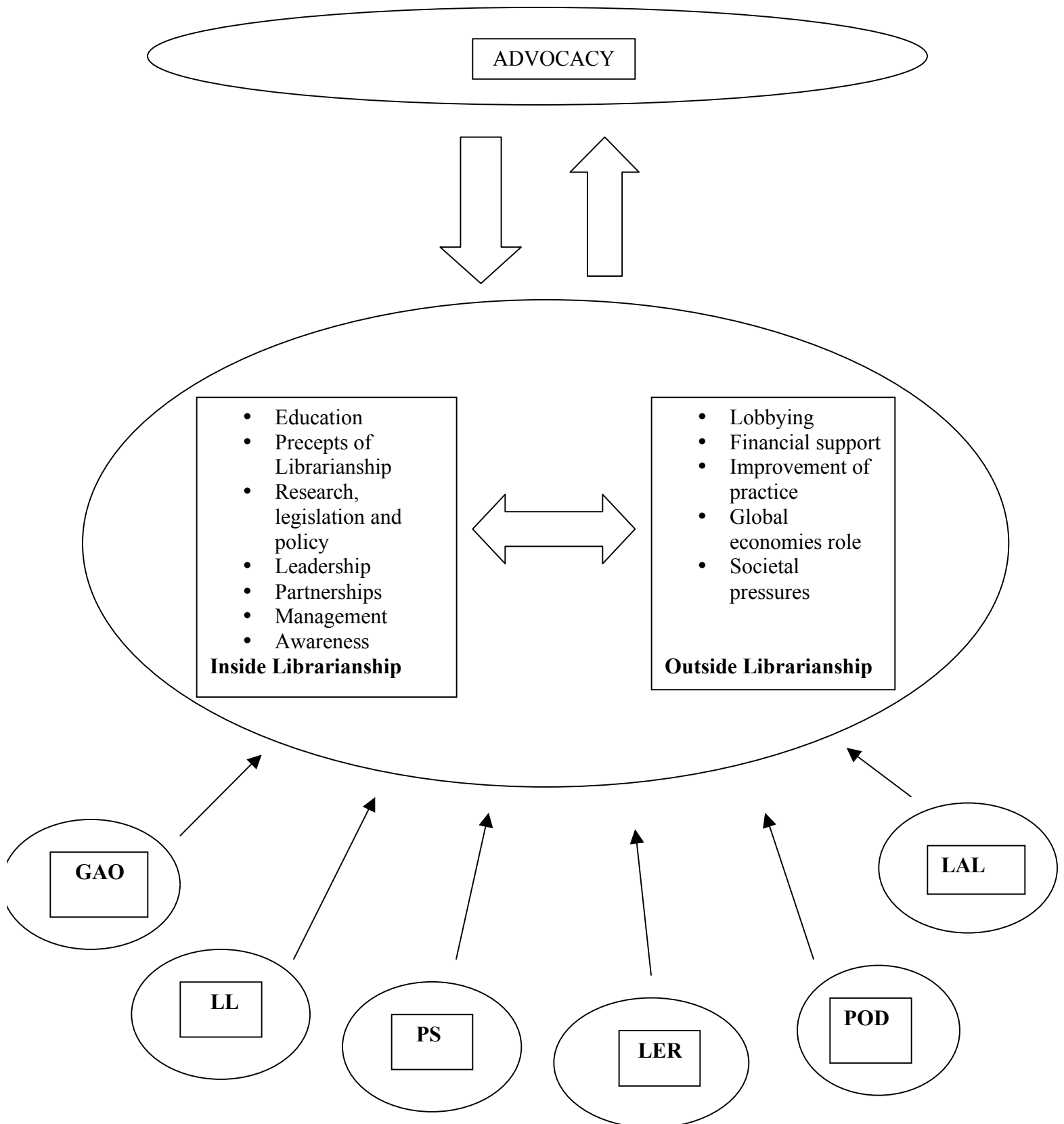
equity can only be attained when government support directly attacks the issue. Interviews for this research suggest that not all groups in developing countries require connectivity services, that is, digital development does not necessarily involve connection to worldwide infrastructures.

As previously noted the literature, particularly Burger's model, indicated that information policies are established without careful thought about their implications for equity, advocacy, and awareness. Brazil demonstrates the fallacy of that assumption by illuminating the vital role of the government in promoting access to all people within its borders. As a qualitative study, this research has been able to explore and identify actor's voices in the process of digitization of academic libraries in Brazil. The categories identifies suggest a wide variety of issues at stake. These categories make the issues of equity, advocacy, and awareness of intrinsic value in the process of studying the digitization process of academic libraries in Brazil.

Chapter 5: The Model

The advocacy model for the advancement of digitization in developing countries (See Figure 21) presents an overview that comprises 12 aggregate categories divided into two groups, those inside and those outside librarianship. The categories are governed by one core concept, advocacy. Characterized as inside librarianship are those categories which are recognized as part of the traditional Library and Information Science (LIS) curricula and also belong to agencies and actors related to LIS. Included as outside librarianship are those categories such as lobbying, financial support, improvement of practice, global economies with their influence at the national level of all countries and societal pressures, which are gaining recognition as new areas in the LIS curricula. This model assumes advocacy as the major grounding force for the advancement of digitization in developing countries. It is intended to support the digitization process in academic libraries and, by extension, in all types of libraries in developing countries.

Figure 20. Advocacy model for the advancement of digitization in developing countries



The model was built after an examination of Brazil as a case study and best case scenario through pattern-matching analysis. It is characterized by its dynamism. As a dynamic model it offers a high degree of flexibility and maneuverability for developing one category in this model, that of *Awareness*, within the nation's policy-makers, state government officials, library leaders and other groups uncovered as potential advocates who would strengthen the case for digitization. This includes awareness of each other's roles and activities that make for strong, rapid and decisive action on the development of digital information legislation and policy.

The first category in the model in terms of agreement on the part of research respondents is *Lobbying*, which is labeled as outside librarianship but which is intrinsically related to advocacy serving as the force that propels it. Lobbying is of first level importance in the formulation and passage of information legislation and policy. Lobbying within the profession attends to advocating for *Management*, another model category, especially improved management of the processes needed to ensure favorable digital outcomes, most importantly strategic planning. It includes the promotion of innovative practices and their diffusion throughout the profession to increase the possibility that all types of libraries will ultimately gain support for their digitization, because of past successes. Finally, lobbying is a unifying force for the profession, both in national and international arenas.

The second category, *Education*, was discovered through agreement among all sectors studied in this research. It is comprised of activities like conferences and debates, training in online resources for new and experienced librarians along with professional development. Developing nations immersed in the process of digitization of academic

libraries need to pay attention to the aspects of education in digitization that result in the enhancement of library professionals' skills. It is absolutely crucial to understand that personnel education is a critical factor in the implementation of any digitization process. The Brazilian case has demonstrated the concerns for education in digitization expressed by library leaders, government agency officials, researchers and other digitization advocates. As an internal category for librarianship, education needs to be integrated into all discussion of planning. Particularly important and still not receiving the attention it deserves in Brazil is the creation of benchmarks and standards that allow for the evaluation of progress in the digital arena, which should be considered by developing nations.

Another category is *Financial Support*. The model calls for advocacy from all sectors under study for financial support at all levels of government in the digitization process. That financial support may come, for example, in the form of subsidies for the acquisition of software and hardware and special prices for academic institutions or libraries commencing digitization efforts. This dynamic model calls also for a more decisive approach to advocacy for financial support, pointing out to the local, state and national authorities from the inception of development that costs are a seminal factor in the implementation, maintenance, and development process for the digitization of libraries. Without financial support from outside the libraries moving digitization forward, success is questionable in developing countries, regardless of the effort expended.

The next category, the *Fundamental Precepts of Librarianship*, contains access, equity and intellectual property rights favorable to the people as its main components.

Policy makers in developing countries, information professionals, library leaders and digitization advocates must understand that it is not enough to set up the computer infrastructure and services without also seeking these precepts for the maximum number of people in the process.

Another category of the model is external to librarianship because it takes place in most cases outside the domain of education for the profession. It is *The Improvement of Practice*. Some activities included here are the promotion of debate and discussion about the most effective and most innovative methods for establishing digitization. Developing countries should understand that improvement of practice is an advocacy goal for digitization programs because it enhances the quality of library and information service, making it visible to the majority of users and citizens.

The *Promotion of Research, Legislation and Policy* for the digitization of libraries, a category found in this research, makes it clear that developing nations, actors and policy makers should be made aware that this activity is vital to the advancement and even the continuation of digitization efforts. Advocacy for the promotion of research and policy enhances the public and private interests and, therefore, it is politically beneficial for policy makers to support it vigorously. Advocacy for the promotion of research and policy is also related to other categories in this model, particularly those outside the profession. The next category, *Partnerships* among advocates is one of them. It includes the coordination of advocacy activities and the creation of coalitions and alliances to add to the lobbying strength of digital proponents.

Leadership was also uncovered as a category in this investigation. It assumes that the three groups studied will advance the cause of digitization through their unceasing

advocacy and their willingness to add other groups to the forces causing action on digital projects and programs by decision makers at every level of government. The growing importance of the *Global Economy and Societal Pressures*, the final categories in this model, stress looking beyond the country in which digitization is proceeding to other nations for the models and the modernization projects they have created, but with the intent to test them for their relevance in the venue at hand, making enhancements, deletions and emendations where they are needed.

The Actors as Advocacy Forces

Underlying the combination of categories promoting advocacy are six forces acting to affect the digitization processes in developing countries. These forces extend beyond the government agency officials (GAO) academic and library association leaders (LL) studied in this investigation, and, as this research demonstrates, encompass the private sector (PS), library educators and researchers (LER), professionals from other disciplines (POD), and international library association leaders (LAL). These forces interrelate to bring the strength and vitality to advocacy for digitization that ensures favorable action on the part of decision makers at all levels of government.

The first force in the model is composed of government agency officials (GAO), individuals who reside permanently within groups that are part of the government and entities that have decision power over information, digitization and funding. They are closely linked to political and economic power and convey importance for developing countries because of their liaisons with the political powers that make decisions on every aspect of the society.

The second force in the model is composed of library leaders (LL), individuals whom, due to their professional expertise and abilities, lead the library profession in issues of decision making. They are able to influence the direction of advocacy through their perceptions and opinions. As a group and force they also remain a powerful exponent for digitization in developing countries because of their skills and visibility in the information arena and their connections to the categories of this model both inside and outside librarianship.

The third force in the model, library educators and researchers (LER), is composed mostly of those who belong to the academic world and the competitive arena of research and development. This force is also seminal for advocacy purposes because of its prestige, the quality of its research and the access they bring to new professionals whom they educate and influence to become aware advocates for libraries, particularly in this case, in the world of digitization. As an advocacy force they propose knowledge that is consumed by and influences decision makers.

The fourth force of the model, the private sector (PS), has as its member's individuals and entities organized around business oriented practices with a profit motive. Due to their economic presence in the national arena and the current emergence of global information economies, they bring another avenue of influence and power to the decision process in developing countries. In the 21st century information economy, establishing links and contacts with the private sector for modernization projects and international connections is mandatory.

The fifth active force of the model is composed of professionals from other disciplines (POD). It encompasses individuals and groups that relate to the digitization

process in developing countries because of their particular expertise in implementation, design, development and user-centered approaches to the creation of either software or hardware or both. As active workers within and outside libraries and information agencies they comprise a unique segment of professionals with a high degree of cutting edge knowledge. Their advocacy efforts should not be underestimated since they are, in most cases, holders of the technical know-how of digitization. Their importance rests along side those with similar expertise in the contents and contexts for successful digitization.

The sixth force of the model is composed of library association leaders (LAL), in most cases long established groups who hold importance in the advocacy process for digitization since they represent entities that are recognized by the government, academic, and private sectors. Their visibility is usually high and their positioning next to policy-makers marks them as ideal advocacy entities. They are, in most cases, the only organized leaders in the library and information world in developing countries. They create a more definite voice and increase numbers to enhance the visibility of library advocacy for digitization.

All six forces should be made part of the digitization efforts in developing countries from the inception of its planning to its development to its implementation and diffusion.

Chapter 6. Conclusions and Future Research

To be of use to developing countries as they digitize library information it is essential to supply a framework from which they can plan strategically with the knowledge that what they are attempting is grounded in research. The results of this study, albeit an exploratory investigation, begin the effort toward that framework. The major questions asked by this research were whether awareness and advocacy by the main professional library associations and academic library leaders taken together with support from government agency officials in Brazil have played a major role in the government's promotion and investment in digital development and in their creation of favorable government legislation and information policy. The response was clear and unequivocal, "Yes, it has." This fact has important repercussions for developing countries. The presence of the government and their support, particularly fiscal support, is necessary and unequivocal for the successful progress of digitization.

This investigation also supplied data in a series of other areas on the digitization of libraries. Findings were put forth that denoted the influences, which affected Brazilian national decision makers as they considered the legislation and policy to promote for academic library digitization. This work also substantiated the elements of an advocacy campaign that were most important for its success. It compiled data on the level of awareness of government agency officials, academic library and library association leaders, the influentials of the profession, to determine how to create the level of awareness needed to spur digitization forward. It outlined future roles for the three sectors included in the study for action once digitization is underway. Finally, it enumerated the categories that provided the elements of a model for the digitization of

academic libraries in developing countries. A roadmap is now in place from which other researchers can refine and redefine this model making it increasingly useful to developing countries beyond Brazil.

This study demonstrated the importance of digital information in the context of academic libraries, by showing that commercial and economic considerations played an important role in gathering attention from policy makers for the academic sector. Analysis suggested further that once a country has identified digital information as one of its priorities, the consideration of technical, legal, economic and political tools commences, but not before. The priority label must be affixed to this action, especially by the government, before it can progress.

The need for developing nations to have scientific and technical information relevant to their country's production of knowledge available on national digital systems instead of reliance singularly on digital data bases built on the scientific production of developed countries, substantiated the importance of this research and further research to make this a greater possibility. It also reinforced the need for the model proposed here.

Though partnerships, coalitions and alliances clearly advance the case for digitization, in spite of the progress made since 1995, better channels of communication for advocacy among the three groups studied and particularly between librarians and the government legislation and policy decision makers, was determined as a continuing need. The case of Brazil brings attention to the effectiveness of strong government leadership in the creation of information legislation and policies for the successful digitization of academic libraries. That leadership, however, needs to be complemented with adequate

diffusion and communication of ideas through a dynamic model of advocacy for digitization.

A large untapped audience is still available to assist in advocacy to make the needs of the library and information science community better known to Congress and to become a force for the creation of the coalitions and alliance that can contribute to progress in communication. This audience requires appropriate and well-coordinated communication channels and training tools on advocacy. In spite of their demonstrated knowledge of advocacy tools, the Brazilian digital information sector recognized its limitations in this regard and indicated interest in more training and education for advocacy activities. Another aspect that arises from this research is the need for education in leadership. The results of this study identified library leaders as one of the main components for positive change and for advocacy in the process of digitization. Leadership in Brazil was shown to make a difference in both.

The government's action in assuming responsibility for the publication of information policy and plans for Internet development in Brazil, such as the Green Book on the Internet, is another example for developing countries to follow to enhance communication. It proved the importance of strategic and systematic approach to national efforts and provided a blueprint for digital activities. However, adequate dissemination of strategic visions is also crucial. In this study limited knowledge of the vision for Brazil was an area shown to need improvement. Developing countries should produce visions for their digital future, but they should also remember to make certain that those visions are made known to all who might have interest in them. Advocacy results from the number willing to take part in advocacy events, which is based on

awareness. From this research comes the further suggestion for the creation of think-tanks, institutes and other forums for the promotion of discussions, debates and research and the stimulation of new ideas for digitization. Brazil made this happen through the IBICT. It was eminently successful in improving awareness, communication and advocacy.

The Green Book and IBICT's actions are symbolic of the government's interest in the digitization of academic libraries and act as effective spaces for the ongoing exchange of ideas. They also increase the dynamism of the digitization process allowing multiple entities, policymakers, and members of the three groups studied to interact with digitization as a category. From this research it was learned that the audience for institutes and other forums must be expanded to include new groups that will add to the extant ideas and dynamism even further.

This study also asked, "Does the case of Brazil demonstrate advocacy in promoting access to all people within its borders?" Again the answer is yes, in contrast to what was expected based on Burger's theory. While Burger's theory includes the suggestion that equity is not considered when a nation's digitization is commenced, this research tested that assumption and found that it is necessary for developing nations, following the example of Brazil, to provide and enact legislation and policy through the use of coalitions and advocacy that include equity of access as a major consideration.

The opportunities and types of activities for involvement in advocacy, arising from this study need to be made better known across the world of developing countries. Dissemination activities, teaching, and training on advocacy are a task for the international library community through established organizations, such as the International Federation

of Library Associations (IFLA), UNESCO, and the OAS. IFLA is particularly well placed to lead the international association activity in this regard. It is the organization that can take on the dissemination of this model, to sponsor programs, especially with the developing countries as the target audience, and the promotion internationally of sessions that train in advocacy and the creation of elements of a successful advocacy campaign. This research makes clear that international collaboration is essential if the countries of the world are to realize the benefits of advocacy and its influence on the success of digitization. The desire for learning about, improving and utilizing advocacy is apparent from this research. The impetus for progress as advocates for library digitization awaits the action of IFLA and other international bodies, to bring its benefits to all nations.

Future Research

While a roadmap is now in place from which other researchers can refine and redefine this model, making it increasingly useful to developing countries beyond Brazil, there remains a series of studies that can advance advocacy as well as the proposed model as tools for improved legislation and policy on the digitization of libraries around the world.

A future investigation centered on the time in which library digitization leaders and supporters enter negotiation with decision makers around the formulation of legislation and policy could track the growth of the influence and power advocates wield in the national, state and local decision making arenas. Must library digitization leaders petition the Congress to appear in testimony at hearings before them after policy and legislation is formulation, but before it is enacted? Is their testimony sought by the Congress rather than requested by library leaders and associations? Does legislation and

policy come to them for commentary as it is being formulated and before any hearings are held? In essence, what practical mechanisms of communication need to be implemented and perfected for a successful dialog between decision makers and library digitization leaders and advocates?

Answers to each of these questions, presented in research, can help to determine the stage in the acceptance of library advocates' input to the policy formulation process. This reveals a measure of the power and influence the advocates have as well as if that power and influence is growing. The necessity Congress feels to include them at earlier and earlier stages of formulation over time represents an increase in their importance to the decision making at hand. This type of research is important because it can lead to areas that need attention to make certain that inclusion occurs at the earliest stage possible. It is also important because it can help determine the rules of the road for advocacy and its potential as a development tool for government agency officials, library and library association leaders, other advocates outside the profession and citizens in general.

A similar study around the place and context in which library leaders and supporters enter negotiations with decisions makers would answer such questions: How are the negotiations established? What communication channels exist? How is the communication process conducted, including where and by whom?

Studying the political context in which advocacy exists would yield significant data. To what extent are young democracies more or less prone to accept and regulate advocacy as a tool for change? Brazil, a relatively young democracy, represents such an environment, where an information sector exists that understands the need for

collaboration and communication among its varying sectors. That, however, may not be the case in other developing nations. This study was an exploration on issues surrounding digitization of academic libraries in Brazil. This study was intended to uncover the existence and potentials of advocacy, it was not intended to look thoroughly at the political context that feeds advocacy as a practice in Brazil.

Further studies that concentrate on testing the awareness of legislation that already exists could provide an action agenda to make awareness more prevalent and encourage more members of the library community to enter the ranks of advocates. Activities can be created from the results of these studies that could supply action agendas for involvement as well as future roles that must be played by all sectors of the digitization advocacy community to continue to advance digitization. Testing the awareness of legislation and policy that already exists could provide another action agenda to make that awareness more prevalent and encourage more members of the library community to enter the ranks of advocates. It could empower their agendas, goals and actions, making them more visible among the related communities of practice. Increasing consciousness among these communities about awareness and advocacy would then benefit their organizations and groups, resulting in the transformation and improvement of their status as a profession. Activities discovered could supply action agendas for their involvement as well as future roles that they must play to continue to advance digitization. Developing nations could not help but benefit from such investigations and the processes they entail.

The fact that there is no broad definition in Brazil of what constitutes advocacy leads to another proposal for future research in which all possible definitions for the Brazilian situation are collected and analyzed for the distinguishing elements of advocacy with the results published and disseminated widely, so that a consistent dialog can occur around the concept of advocacy, its elements and which elements are most useful in which situations. This also suggests future research in which advocacy is investigated as a set of actions that start without a clear strategy, but later turn into organized, collective efforts with several different groups of practitioners, professionals, researchers and leaders playing a part.

Testing the results developed here on one type of library on other types of libraries might lead to alterations that would make the model more useful outside of academe. Research is the vehicle to determine the range of applications of the model and its relevance to the digitization of all types of libraries.

The importance and presence of leadership in advocacy for digitization in developing countries and the future design of a model that pays attention to how leadership is constructed specifically in the information arena adds another locus where research is needed. To what extent does leadership in this dynamic arena evolve? Is it in an equally dynamic way? Developing nations can benefit from such a model in the current progressive library and information sectors where globalization forces affect their development.

As an exploratory case study, this research sets up an agenda for future in-depth analysis of the relationship, brought about by advocacy, between government agency officials, academic library and library association leaders and leaders from other sectors

with decision makers in information legislation and policy formulation concerning digitization. Further tests of the model, undertaken in other South American developing countries, would make it more useful to a wider range of nations. Such research would corroborate the categories of the model and add or remove categories and elements that are more or less effective for the countries in which this testing occurs. A test of the presence or absence of influences on policy makers in other developing countries that led to the formulation of legislation and policy would also strengthen the model, as would a broad scale study across several developing countries of the elements of a successful advocacy campaign.

Studies in other developing countries, as well as longitudinal studies conducted in Brazil, would isolate other categories and elements that indicate the progress of advocacy as a force for favorable legislation and policy enactment. Emphasis on the overall perceptions of the future roles of advocates and the obstacles they need to overcome for digitization to advance would be other indicators of advocacy as it develops throughout the life of digital legislation and policy formulation. Other developing countries might use these stages to determine the steps and elements of an advocacy campaign that would prove most successful for the advancement of digitization legislation and policy in their particular environments. Future research in these areas will not only advance advocacy, but also digitization at a time when it is crucial for any library determined to serve well not only its local constituents but its constituents at the country level.

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Appendix A: Survey Questionnaire

Digitization of the Academic Library in Brazil: A Survey

As a faculty member in the doctoral program, I would appreciate your collaboration on the dissertation research of Mr. Chaparro. We are very interested in its results and with this letter I ask for your help your help in completing the following survey.

Sincerely
Tefko Saracevic, Ph.D.
Professor II
Associate Dean
SCILS/ Rutgers University.

Dear Colleagues,

My name is Sergio Chaparro. I am a PhD student at Rutgers University. This survey is one of the instruments for my dissertation. Its purpose is to study the digitization of academic libraries in Brazil, which is projected as a possible model for success in South America. Given your expertise, you have been chosen to express your opinions on these important issues. I would appreciate your cooperation addressing, commenting and providing me with your responses.

Your personal data won't be disseminated or used for any other purposes than keeping track of the respondents if complementary questions arise.

Please, read the questions carefully and feel free to communicate any thoughts you find relevant . If you have any question answering the survey, please contact me at chaparro@scils.rutgers.edu. Thank you very much for your response.

Survey Questions:

Over the past years the Brazilian government has promoted at least six (6) pieces of programs or policy favorable to academic library digitization. Please respond to the questions below giving your perceptions of the factors leading to this progress for academic libraries.

I. From the following list of six (6) programs please check the box before the programs with which you are most familiar.

IBICT/Biblioteca Digital Brasileira – BDB	IBICT/Prossiga	CNPq/ Conselho Nacional de Desenvolvimento Científico y Tecnológico
CAPES/ Coordenação de Aperfeiçoamento de Pessoal de Nível Superior	Programa Sociedade da Informação	PMQESU/ Programa de Modernização e Qualificação do Ensino Superior/

II. What do you perceive were the influences on Brazilian policy makers that led to the establishment of the legislation that shaped Brazil information policy?

1. What were the activities with which you are familiar of Brazilian government agency officials?

2. What were the activities of academic library leaders with which you are familiar?

3. What were the activities of professional library associations?

4. Are there other important influences that this research team should consider? If Yes

please answer the questions A and B below.

YES

NO

a. What organizations led the activities?

b. What did they do?

III. Did you participate in the activities advocating the establishment of information policies for the digitization of academic libraries? If yes, please describe your activities.

IV. What elements of an advocacy campaign were in place when legislation and policy favorable to academic library digitization was enacted? Check the boxes that are appropriate by ranking them from 1-9 with 1 being the most important.

TV interviews	Op-Ed pieces	Editorials
Press Conferences	Congressional testimonies	E-mail campaigns
Personal Lobbying	Letter writing	Creation of Pressure Group
Organized Group Lobbying	Opinion leaders	Other

V. Has national Brazilian legislation and policy served as a model:

a. For local or state governments?

b. For regional jurisdictions?

c. Has the use of the model resulted in advancing the digitization of academic libraries?

VI. What barriers need to be overcome for progress to continue in digitization?

VII. For the future, what is your perception of the roles that must be played to continue to advance digitization?

- a. What is your perception of the future advocacy role of government officials?
- b. What is your perception of the future advocacy role of the Brazilian academic library sector?
- c. What is your perception of the future advocacy role of the library leaders?
- d. What is your perception of the future advocacy role of the Brazilian library associations and organizations ?

VIII. From your experience, was advocacy by the library profession a factor in the successful enactment of academic digitization?

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Rutgers University, School of Communication, Information, and Library Science (SCILS), New Brunswick, NJ

M. L. S. in Management concentration • May 1997

Ph.D. candidate with emphasis on Information Science, Information Technology and Policy

Dissertation: *Digitization of the academic libraries in Brazil: A model*

Advisor: Professor Betty Turock • 2000 to present.

Simmons College, Boston, MA

Teaching Experience

Assistant Professor, GSLIS • September 2004 to present

Rutgers University, New Brunswick, NJ

Instructor, SCILS • September 2000 to summer 2004

Taught *Human Information Behavior* (HIB) to MLIS students.

Instructor, SCILS • September 2001 to summer 2004.

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Taught *Introduction to Communication 101*.

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