Distance Education Methodologies used by Brazilian Universities

Abstract Number: 002-0385

Second World Conference on POM and 15º POM Conference,

Cancun, Mexico, April 30 – May 3, 2004

MARTA DE CAMPOS MAIA
Professor at the Department of Information Technology at FGV-EAESP
PhD in Business at Fundação Getulio Vargas - FGV-EAESP
Av. Nove de Julho, 2029 10º andar
São Paulo – SP – Brasil CEP: 01313-902
mmaia@fgvsp.br
Fone/Fax: 0055-11- 3281-7758

FERNANDO DE SOUZA MEIRELLES
Director and Titular Professor at the Department of Information Technology at FGV-EAESP
PhD in Business at Fundação Getulio Vargas - FGV-EAESP
Av. Nove de Julho, 2029 3º andar
São Paulo – SP – Brasil CEP: 01313-902
meirelles@fgvsp.br
Fone/Fax: 0055-11- 3281-7789

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Abstract

The study of the different models used in distance education in the main Brazilian Higher Education Institutions (HEI) can encourage analysis of the professionals involved in Distance Education who are faced with choosing a methodology that best meets the needs of students who are unable or unwilling to come to the HEI campus.

For these universities that are introducing courses in the distance education one of the main challenges is to seek for the appropriate pedagogical language of learning carried on by multiple media available.

The main purpose of this study is to determine how information and communication technologies (ICTs) are being applied to educational processes in distance education in Brazil's HEIs.

Introduction

> No one educates anyone else, no one educates themselves,
> men educate one another mediated by the world.
> Paulo Freire (1987)

The development of new technologies allows today's mankind to enjoy great advances in many areas. These technologies are causing changes to how business is done, to how people work, and are also lending new resources to teaching. They have fostered the development of new Distance Education (DE) alternatives that are being researched and implemented at Higher Education Institutions (HEI).

The digital environment, based on the broad and large-scale application of information and communication technologies, is affecting the educational process in several deep ways. This effect can be observed by analyzing the following characteristics: education is not something that takes place during youth alone; knowledge tends to become obsolete, demanding an environment that allows for continuous learning; education and entertainment are converging into one single environment; the delivery of educational instructions is converging towards a more informal, electronic medium; and electronic access to knowledge bases is being enabled in and easy, cheap, and free way.

The knowledge accumulated in society has undergone expressive expansion in recent years and, over the Internet, today's mankind has much broader access to information, at a very fast paced as compared to earlier periods. But, as quoted by Valente (2002), the fact that we have abundant information does not mean that people are more knowledgeable.

Knowledge is a product of information processing. But how can one encourage this processing, and how does it take place?

In order to attain better educational levels in Brazil, we must create means to give people an opportunity to build knowledge and, therefore, we must expand the supply of education.

Productive individuals who are not permanently updated may suddenly become "technologically illiterate", that is, these individuals may become unfit for their original jobs or for other that may be created, usually requiring other skills in addition to those initially present.

This perspective can change via the application of technology to education, as the development of new technologies has brought about a silent revolution in society, as well as changing how business is done, how people work, and leading to new teaching and learning possibilities. They have enabled the development of new DE alternatives, combining familiar

educational resources with tools from modern information and communication technologies (ICTs).

In recent years the Internet has propitiated many changes in the area of education, in regard to both the use of technology and to how the didactic content of a course is presented. Changes can be perceived in the scope, content, and provision of distance education.

This is the context in which Distance education arises as one of the most important tools to disseminate education and knowledge.

For these reasons, the number of distance students in the world has been growing at a rate of 33% per year and, according to Brazilian Distance Education Association distance education will expand, reaching 2.2 million students in Brazil in 2002, a growth of 33% per year, from the 710 thousand students in 1998.

The revenues generated globally by Distance education should rise from US$ 6.6 billion in 2002 to U$ 23.7 billion in 2006. In Brazil, revenues in 2003 are projected at US$100 million.

In Brazil, the demand for distance education is growing fast. At the macroeconomic level, the interest on enhancing the population's schooling in the short level relates to factors like the globalization of the world economy, as a result of which there is a desire to enable to country to compete in the international and global market.

Trends point to a renewal of teaching, formulating a broader conception of the educational process in order to meet the society's demand. In this context, information and communication technologies (ICTs) can be used by HEIs to align and provide their contents, adding access flexibility to distance courses.

Access to learning resources have never been as easy as they now are over the Internet. In a few years, high-performance computers and telecommunications will be used as didactic

materials. Likewise, virtual communities and shared artificial environments will be part of our daily routine, as are now the telephone, TV, radio, and newspapers. Therefore, distance learning experiences will be regarded as vital for both students and HEIs.

One of the main challenges for HEIs that are venturing into DE is to identify a teaching language appropriate to learning mediated by the several media available. Constant management control and monitoring of the work of professors, tutors, interns and secretaries are equally crucial, as interaction with students can take place in many ways, each of them essential to successful learning. Structuring a specialized team made up of individuals who are knowledgeable in technology and pedagogy and can work as a close-knit unit can ensure better student learning results.

Objectives of the Investigation

Although it has been in existence for over 150 years, according to Maia & Abal (2001), only in the past two decades did Distance Education become the subject of systematic academic study and research.

It is worth noting the importance of a survey of distance courses that includes the ones that have been authorized and accredited by MEC, as these are probably already in the "standard format", that is, aligned with the Standard Distance Education Format adopted by the Brazilian government. Half of the 32 HEIs with MEC-approved and accredited programs have been approved recently, and 17 of these are included in this study.

Another point to be noted is the need to achieve critical mass in DE in Brazil. The country is unable to meet the enormous short-term demand in the on-site mode and, therefore, MEC has put efforts into the approval and accreditation of distance undergraduate courses,

which confirms the need for a research project capable of describing the main methodological issues required for approval and accreditation (Maia, 2003). In a nutshell, the purpose of this research is to analyze the educational processes pervaded by information and communication technology used by HEIs in Brazil's distance courses.

Theoretical Reference

Several authors point out basic characteristics of the Distance education process which, despite lacking homogeneity, let us reach a clearer definition of the concept:

- Moore (1996) defines DE as communication among students and teachers mediated by printed documents or some sort of technology;

- Sarramona (1986) defines DE as a process that requires all the conditions inherent to any educational system, vis: planning, process guidance, and evaluation.

According to Keegan (1996), the core elements of the concepts of DE are: physical separation between professors and students, which distinguishes DT from on-site teaching; influence of the educational organization (planning, systematization, plan, design, and strict organization), which sets it apart from individual education; use of technical means of communication, usually printed, to connect professors and students and convey educational concepts; two-way communication, through which students can benefit from taking the initiative in dialog; the possibility of occasional meetings with didactic and socialization purposes; and participation in an industrialized and potentially revolutionary form of education.

This type of education/learning transforms traditional classroom relationships. Professors' authority and their domain over the teaching process change into shared learning. A new student-professor interface arises, mediated by computing technologies such as the Internet.

Under this new education model, instructors act as facilitators more than specialists, as courses are less structured and more personalized, since it is the students' are responsible for their own instruction. These concepts reinforce the notion that students will learn by doing, not by rote (Maia, 2003).

Investigation Methodology and Sources

Mumford (1985) states that, as far as information systems research goes, best results are often achieved by a combination of methods.

Distance education is still a novel topic when one considers the higher education in place in Brazil. As a result, this exploratory survey is essential to the development of the research, as it can lead to new ideas and discoveries.

Yin (2001) defines case study as the method that examines the relevant phenomenon in its natural environment, by application of several data collecting methods, with the purpose of obtaining information on multiple entities. The same author states that multiple cases study is recommended where the objective of the research is to describe a phenomenon or to construct or test a theory. Multiple cases study enhances internal validity and helps prevent potential researcher bias.

The purpose of this research is to analyze the educational processes pervaded by information technology that are used HEIs in distance courses in Brazil. The basic question this research intends to answer is: How are information and communication technologies used in educational processes in Brazilian HEIs' distance courses?

Identifying how ICTs are applied, and their scope, as regards the following questions:

- What teaching technologies are used? What are the main functionalities offered to students as support tools? How are course materials and contents prepared and distributed? What is the evaluation criteria adopted?

In addition to the theoretical review indicated earlier, the study of the use of ICTs in distance courses at HEIs involved the use of a methodology made up of a combination of different research methods. Th research methods used were:

•   bibliography survey, visits to the HEIs that adopt distance education, sending of questionnaires, and analysis of the HEIs' Web sites and Distance education portals.

As for the case study, the research will be limited to a certain number of Brazilian HEIs that have developed such courses and use information and communication technologies as tools applied to education.

Sample Size

The study includes 50 HEIs. Interviews and visits took place in 40 of them. The remaining HEIs sent information by filling in the questionnaire or took part in the study by means of telephone interviews. Some of them also provided complementary information over e-mail. Only three interviews were not considered valid for the purposes of the study, that is, out of 50 HEIs involved, only 47 were analyzed.

The sample is made up as follows: 38% are private universities, 34% are public State universities, and 66% are public Federal universities, as indicated in chart 1.
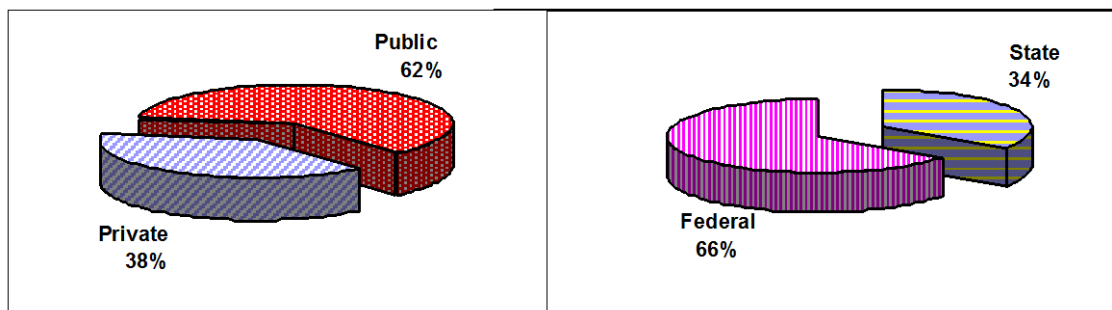
Chart 1: Sample Description– HEI Types

Survey Results

The information gathered at the 50 relevant HEIs was analyzed individually and later grouped by similarities. This similarities analysis took account of the basic questions proposed in the analysis model and the case study protocol, as follows: courses offered; students; duration and accreditation; teaching methodology/course design; learning environment; teaching; applied technologies; student evaluation system; course cost and management.

1.   **Courses Offered**

a.   **Objective of the Courses**

As for the field of knowledge of the relevant courses, the sample is divided as follows:

- Teaching Skills Courses – 22
- Business Administration Courses – 13
- Technology Courses – 7
- Courses in miscellaneous fields – 5

The sample was composed of the following courses:

Table 1: Distance Courses Offered

Analyzed courses	Amt.
Improvement	4
Specialization	12
Extension	12
Undergraduate	18
Master's	1
Grand total	**47**

Table 1 shows that Undergraduate courses are the most frequent in the sample, answering for 39% of the total. Undergraduate courses are also more numerous. The many distance undergraduate courses found in all national regions can be explained by the demand the LDB (Law No. 9.394/96, concerning educational directives and bases) created for grammar-level teachers, establishing that "by the end of the Decade of Education (2006), only teachers with higher education degrees or graduated by training in service will be admitted".

2. Students

a. Number of enrolled/graduating students

The number of students enrolled are 80,929 in distance courses at the HEIs at hand, most of them in distance undergraduate courses (68,640 students, or close to 85% of the total). Together, Undergraduate and Specialization courses answer for around 92% of the number of enrolled students (table 2).

Table 2: Number of Students Enrolled with and Graduated from Distance Courses

Analyzed Courses	Nº of Enrolled Students	Nº of Graduated Students
Improvement	1,180	1,300
Specialization	6,210	6,211
Extension	4,599	4,226
Undergraduate	68,640	887
Master's	300	
Grand Total	**80,929**	**12,624**

3. Duration and Accreditation

a. Duration of the courses

One of the difficulties revealed by our interviewees has to do with the size, in hours, of each distance discipline. The undergraduate course is the lengthiest in the sample, with an average 3,264 class-hours (table 3).

Table 3: Average number of class-hours per course

Analyzed Courses	Avg. Nº of class hours
Improvement	240
Specialization	434
Extension	62
Undergraduate	3,264
Master's	450

b.   Analysis of Distance Undergraduate Courses in Brazil

Ninety percent of the distance Undergraduate courses included in the sample are MEC-accredited. The remainder are accredited by the "State Education Council" in one case and, in another, by three São Paulo State Universities, operating in partnership and hired by the *Secretaria de Educação do Estado de São Paulo* ("São Paulo State Bureau of Education") to offer these distance courses to around 7,000 students, all professors at the State's public schools system. That is, certificates issued under this course are accredited by the State Bureau and, therefore, upon completion, students will have met the higher-education requirement.

All of the courses analyzed here are semi on-site, that is, partially distance and partially on-site. The distribution of distance Undergraduate courses in Brazil is as follows (chart 2):
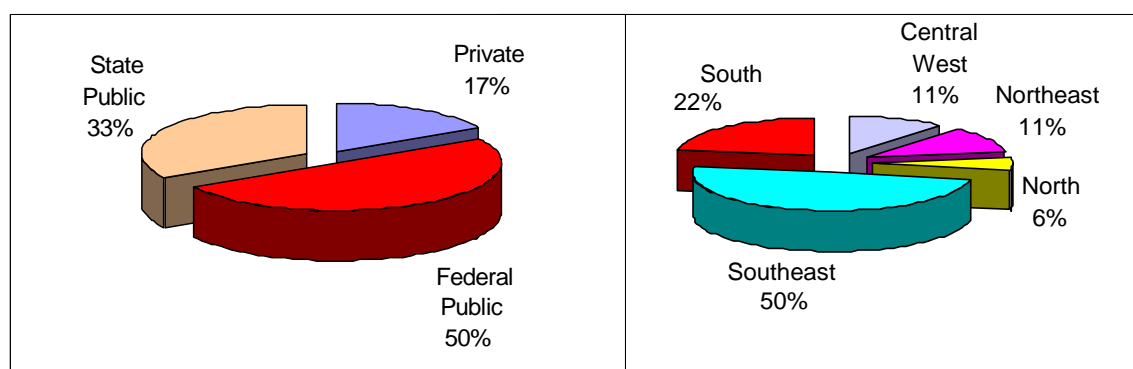

Chart 2: Distribution of the offer of Distance Undergraduate Courses in Brazil

All of the degrees distribute their content on printed media. Only one of the relevant courses is offered by a private HEI, which offers a distance Business Administration course, does not distribute printed content, and only makes content available over the Internet.

Distance undergraduate courses provide their students with opportunities for on-site meetings and offer them distance tutoring. No HEI offering distance a Undergraduate course uses content tutors to support students. All of the tutors operating in these courses have higher-education degrees and undergo a training period to remotely support students.

These Undergraduate courses are offered, in most cases, by HEIs located in State Capitals, but their courses are not restricted to these cities. The major share of their public lies in the countryside of the States where they are offered, thereby providing students with a unique opportunity to obtain a degree. Most of the students in these courses are State or Municipal School System teachers.

These teachers, living in faraway locations, distant from university campuses, were unable to attend on-site undergraduate courses for several reasons. The first is distance from the cities where they live/work to where such courses are available, as, in order to obtain a 100% on-site degree, these teachers would need to stop teaching for an average period of four years and move to the city where the desired course was available, which would require considerable financial investment, considering the costs involved throughout the process.

There is the cost of transportation, food, and all others associated with the course itself, such as books, paper, etc. The ability to remain in their hometowns or to have to cover only a short distance to attend a course stands for great savings for them. Not to mention how hard it is to get accepted into a Public University, whose courses are, in most cases, the most competitive in Brazil.

Therefore, these Distance Undergraduate courses are in fact taking higher education to areas in Brazil that were previously lacking, giving these teachers a unique opportunity to get an undergraduate degree. There is a very relevant social aspect in the graduation of grammar-school

teacher in the Brazilian interior. Undergraduate courses meant for grammar-school teachers allow students to remain at their workplace and get access to an education at a par with that offered at State Capitals.

Most directors and coordinators of the DT centers interviewed believe that DT can be very helpful in providing access to Undergraduate education for adults that already have responsibilities, be it for the purposes of recycling, be it for people that for one reason or another missed the chance to get on-site education. Other courses, like Extension, Improvement, Master's and Doctor's degrees can also excel remotely, particularly in the case of Doctoral work, which requires lots of dedication from students and few classes.

Around 39% of the HEIs offering distance undergraduate courses in the analyzed sample don't charge tuition from their students. Half the sample charges only a printed materials fee, which, at the end of three or four years, equals an average total cost of R$ 1,200, or R$ 25 per month per student. Ninety percent of the HEIs studied here that offer distance undergraduate courses also offer teacher qualification ones and these, where they are not free, charge nominal fees from their students. All of the free Undergraduate courses are offered by Federal and State Universities.

Table 3: Computing Resources used in Distance Undergraduate Courses

Computing resource	Total
Internet	49.6%
Internet and CD-ROM	5.6%
Internet, CD-ROM and Teleconferencing	5.6%
Internet, CD-ROM and Video	5.6%
Internet, Teleconferencing and Videoconferencing	5.6%
Internet, Teleconferencing, Videoconferencing, CD-ROM and Video	5.6%
Internet, Teleconferencing, Videoconferencing and Video	5.6%
Internet, Teleconferencing and Video	5.6%
Internet and Video	5.6%
Nome	5.6%

The other computing resources (table 3) most often put to use by HEIs are teleconferencing and a videoconferencing, used by around 28% of HEIs offering Distance Undergraduate courses. CD-ROM is used to distribute course content by 17% of the sample. Finally, video cassette is used both to distribute content to students who have not attended teleconferences videoconferences and as a supportive didactic tool.

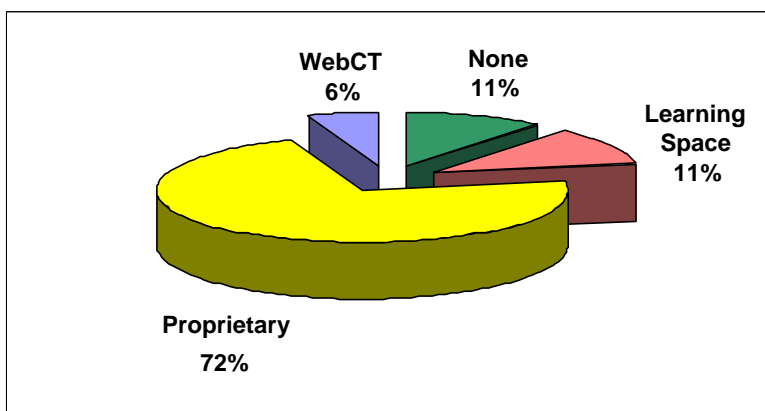As for the teaching platform used, many choices exist (chart 3).

Chart 3: Tools used to distribute content and manage courses over the Internet

Most of the HEIs offering distance undergraduate courses elected to use internally developed teaching platforms, instead of using commercially available ones like LearningSpace or WebCT.

The reason for this may be tied to two reasons: the first one may have to do with the costs associated with the platforms available on the market, which are very expensive; second, public HEIs have available specialized professionals with the skills required to develop the software.

The total number of employees involved in these courses is 3,476 individuals and the average number of students per tutor is 32.

All of the distance Undergraduate courses included in the survey apply on-site exams, as required by MEC. None use distance exams. Only 22% of the courses analyzed do not grade

students for their participation throughout the courses but, on the other hand, all of the courses compute final grades based on a set of partial grades, including tests, papers, projects and/or theses.

The characteristics common to these courses are: they are all semi on-site; none of them use content tutors to support students; they all use the Internet and on-site meetings to provide student/professor interaction; and they all make printed materials available.

4. Teaching Methodology/Course Design

a. Materials Distribution

Note that the courses whose material is printed or delivered in CD-ROM are semi on-site ones (table 4), where materials are distributed by the course tutor/professor. HEIs show a distinct preference for distributing their courses on printed media (53% of the sample). Some HEI make their materials available over the Internet, as virtual booklets (24%) and students elect whether to print the course contents or not. In interviews, course coordinators claimed that 90% of students print out all of the materials available over the Internet.

Table 4: Material used in different forms of Interaction

Forms of Interaction	Internet, telephone & fax		On-Site, Internet, telephone & fax		On-site	
Materials Distribution	Internet	Internet associated with other resources	Internet	Internet associated with other resources	None	Total
Virtual Booklets	6.4%	6.4%		10.6%		23.4%
Printed Materials						53.2%
No Prd. Materials	6.4%	4.3%	6.4%	6.4%		23.4%
Total	17.0%	14.9%	27.7%	38.3%	2.1%	100.0%

The availability of virtual booklets is only encountered at semi on-site courses that use the Internet associated with other resources (11% of the sample). Courses whose printed materials are distributed to students as booklets, books, guides or simple classroom materials are often semi on-site courses (66%), where materials are passed out by the course tutor/professor.

Only 24% of the courses studied make no printed materials available, leaving the decision to print the content to each individual student.

The Internet is being used conduit for information between students and HEIs. In recent years, Distance education has been transferring, almost inexorably, to Web-based teaching. But we note the overwhelming majority of courses continues to offer students content on printed media (around 68%), although 97% of them already used the Internet as a tool to both distribute materials and provide student/professor interaction.

b.   Tutors

Tutors are supposed to interact with students, acting as discussion moderators and facilitators. They must be capable to generate dynamism among participants. The tutor's role is to act as an entertainer and a counselor, to be provocative, to seek out discouraged students. They must be capable of visualizing situations and directing discussions without resorting to criticism. Students need tutors to stand by them, because this is a means to create connections.

There are differences that set professor-tutors professors apart from content tutors. In the sample at hand, the percentage of content tutors is less than that of non-content tutors (chart 2). Tutoring is known to be expensive, as it requires tutors to be constantly active, motivational, and encouraging, which entails a heavy workload. In addition, each tutor serves an average 20 to 30 individuals.

The greater the number of students enrolled with DE courses, the greater the tutoring expense. But when the role of the tutor is played by the content professor, this cost is even greater. This can be proven in our sample, as the average cost per student in courses offering tutoring by a content professor is R$ 3,420, whereas the average cost in courses in which tutoring

is not provided by the content professor is R$ 2,144. It is also known that content courses, devoid of interaction, are the cheapest ones.

In the sample, the content professor played the role of the tutor in only three free courses. The average was 33 students per tutor. Around 65% of the courses analyzed here sport a ratio deemed adequate by MEC standards, that is, equal to or lower than 30 students per tutor.

The students:tutor ratio is much greater where tutoring is provided by a content professor, due to the cost of content professors' work hours. The greater the number of students for which he or she must take responsibility, the lower the cost of teaching per student.

Only one Specialization course offers tutoring by the content professor and is MEC-accredited. This shows that this is not a requirement for a course to be authorized and accredited by MEC.

5.   Learning Environment

a.   Forms of Student-Professor Interaction

Considering that the best technology is the one that reaches students no matter where they are, it is easier to understand why, among the analyzed HEIs, interaction between professors/tutors and students almost always (around 98% of HEIs) takes place via Internet, telephone or fax. What changes from one course to another is the possibility of on-site interaction in meetings of classes (chart 4).

Note that all of the longer duration programs, such as Undergraduate or Master's courses, offer on-site meeting opportunities in which students and professors/tutors interact, associated with support from Internet tools. The means used for professor-student communication are many and, depending on the chosen communication vehicle, or on the combination of vehicles, greater or lesser interaction among actors takes place.
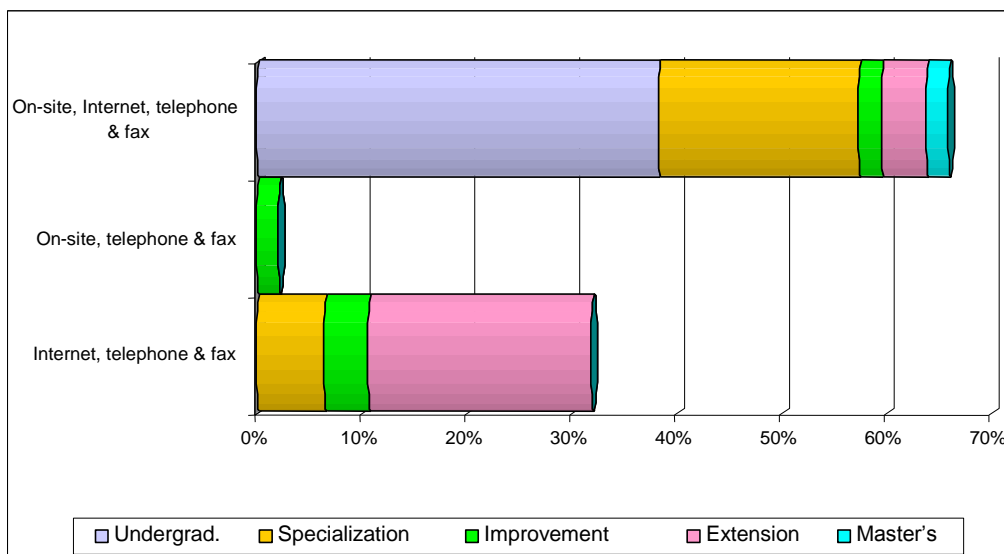
Chart 4: Forms of Interaction x Type of Course Offered

In all of the processes analyzed, we conclude that the main obstacle to implementation or actualization of the courses lies not so much on technology, or on whether or not customers are available, but rather on professors. Professors, the generators knowledge, may be one of the main hurdles faced in the Distance Teaching process.

b. **Student Support**

A total 98% of the analyzed courses uses the Internet as a means for student/professor/tutor interaction, regardless of whether or not they a re fully distance.

In fully distance courses, this interaction may take place in many ways, such as videoconferencing (4% of the sample) or web radio (2% of the sample) – table 5. The most frequent computing resources, aside from the Internet, are: CD-ROM, often used to distribute course contents; videoconferencing, which allows professors to be at one location and students to be at another, distance, one, but still communicate synchronously; and teleconferencing, which works like videoconferencing, but does not enable synchronous communication among participants.

HEIs using teleconferencing associate the use to the availability of an 0800-line, through which students in distance classrooms make a telephone call and ask questions or have doubts clarified. These questions are "filtered" and transmitted to the professor, who answers them. In total, nine HEIs in the sample use this resource as described above, or with few changes.

Table 5: Computing Resources and Form of Interaction

Computing resource	Internet, telephone & fax	On-Site, Internet, telephone & fax
CD-ROM	12.8%	17.0%
Internet	17.0%	25.5%
Teleconferencing	2.1%	14.9%
Video	4.3%	10.6%
Video *chat*		2.1%
Videoconferencing	4.3%	21.3%
Video on demand		2.1%
Web radio	2.1%	

It is important to note that semi on-site courses make more intense use of the available computing resources. Among the resources available in the analyzed sample, only web radio is used by distance courses.

Table 6: Computing resources and analyzed courses

Computing Resource	Improve-ment	Specia-lization	Extension	Undergra duate	Master's	Total
Internet	2.1%	8.5%	12.8%	19.2%		**42.6%**
Internet w/ web radio		2.1%				**2.1%**
Internet and CD-ROM	4.3%	4.3%	4.3%	2.1%		**14.9%**
Internet and Video				2.1%		**2.1%**
Internet and Video		4.3%			2.1%	**6.4%**
Internet, CD-ROM and Teleconferencing				2.1%		**2.1%**
Internet, CD-ROM and Video			2.1%	2.1%		**4.3%**
Internet, CD-ROM Videoconferencing		2.1%	2.1%			**4.3%**
Internet, CD-ROM Videoconferencing, Teleconferencing and Video			2.1%	2.1%		**4.3%**
Internet, CD-ROM Videoconferencing, Teleconferencing and Video on demand		2.1%				**2.1%**
Internet, Teleconferencing video				2.1%		**2.1%**
Internet, Teleconferencing Videoconferencing		2.1%		2.1%		**4.3%**
Internet, Teleconferencing Videoconferencing and video				2.1%		**2.1%**
Internet, Videoconferencing Videochat			2.1%			**2.1%**
None	2.1%			2.1%		**4.3%**

The most frequently used Computing Resource (table 6) to provide courses and student-support, is the Internet alone (42,55%). The Internet is also used in several combinations, such as associated with CD-ROM, or with videoconferencing and teleconferencing, that is, the Internet is associated with practically all of the courses in the sample. Only one of the courses offers no Computing Resources to its students.

The new ICTs, like videochat, video on demand and web radio, are used by few HEIs. On analyzing the ICTs in use by the HEIs included in the study, we conclude that the DT model in force is still based on the 2nd and 3rd generations, that is, they still rely on tutored audio and video resources. Most HEIs already use the 4th generation model, which includes computer-based communication.

6. Teaching

a. Courses Structuring

One of the main challenges DT poses to HEIs is the motivation of students, as there is no daily contact with professors or classmates. Professors can enhance motivation by providing constant feedback and encouraging discussions among students.

Professors/tutors can help in this sense by playing the role of facilitators. They raise motivation by giving students the opportunity to share their learning objectives.

Students normally learn more effectively when they have the opportunity to interact with one another. This interaction leads to problem solving in groups. Exercises that require students to work together and then gather to make presentations to the entire class heighten interaction.

Most of the courses offered é semi on-site (70%) and only the Improvement, Specialization and Extension programs offer fully distance courses (table 7):

Table 7: Course structure per course offered

Course offered	Fully distance	Semi on-site	Total
Improvement	4.3%	4.3%	8.5%
Specialization	6.4%	19.2%	25.5%
Extension	19.2%	6.4%	25.5%
Undergraduate		38.3%	38.3%
Master's		2.1%	2.1%
Total	**29.8%**	**70.2%**	**100.0%**

As for the number of students enrolled in the two modes (semi on-site and distance) the analyzed sample shows a very uneven distribution: 11% of students (or 9,022) are enrolled with fully distance courses. The remaining 71,907 are enrolled with semi on-site ones.

Another analysis pertains to class format. Around 24% of the analyzed sample structures their distance courses according to the traditional class format, as in on-site teaching. On the other hand, around 77% of the analyzed courses are structured in the format many authors deem "ideal" for distance education, in modules or theme paths.

7. Technologies

a. Platform/environment

Most universities (55%) elected to use internally developed platforms, as can be seen in table 8, rather than buy one of the commercially available ones.

Table 8: Platform and analyzed course

Courses	AulaNet	Learning Space	None	Proprietary	WebCT	Total
Improvement			2.1%	6.4%		8.5%
Specialization		2.1%		17.0%	6.4%	25.5%
Master's				2.1%		2.1%
Undergraduate	2.1%	4.3%	4.3%	25.5%	2.1%	38.3%
Extension	4.3%	4.3%		12.8%	4.3%	25.5%
Total	6.4%	10.6%	6.4%	63.8%	12.8%	100.0%

WebCT is used by the universities that charge the most for their courses, an average R$ 9,400. The cost for students of HEIs using the AulaNet platform is the lowest of all, at an average R$ 200. We also observe that free courses use proprietary platforms in around 60% of courses. At free courses, in addition to proprietary platforms, only AulaNet and LearningSpace are used. HEIs using proprietary platforms (around 45%), offer semi on-site courses (chart 5).
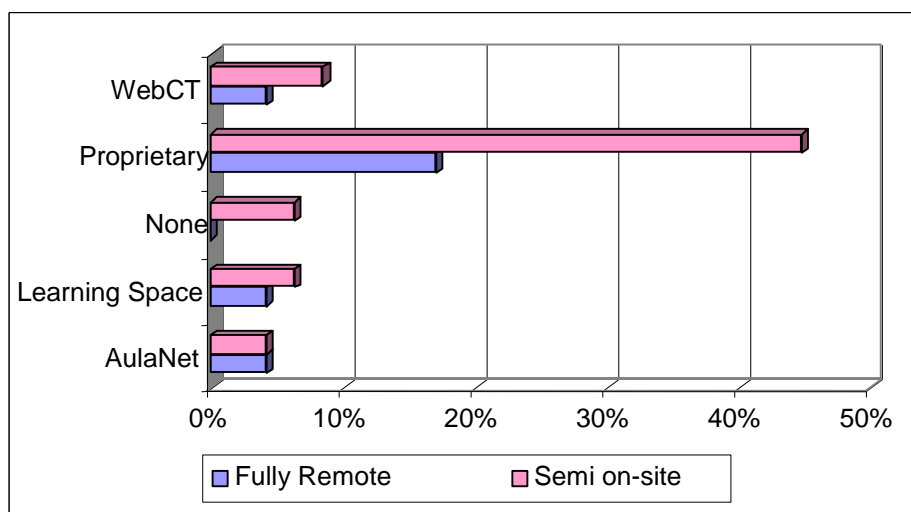

Chart 5: Forms of Interaction and Selected Platform

8. Student Evaluation System

a. Evaluation criteria

Distance students need to reflect on what they are learning; they must examine their existing knowledge structures and how new information are added to them. Ideally, constant evaluations should be used before, during and after courses so that failures that take place during development and the teaching process could be thought over are solved. But this is not the case in practice. Only a few HEIs do this, expressing concern and evaluating the process in its entirety. The overwhelming majority merely evaluates students at the end of the process.
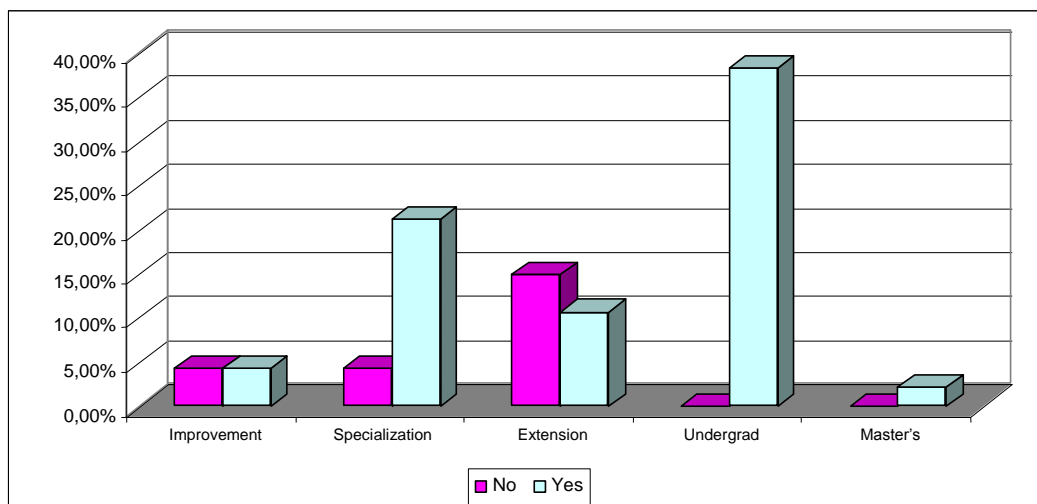
Chart 6: Course Type x On-Site Final Exam

In all, 77% of the courses analyzed here apply on-site final exams, which, in addition to being a requirement for MEC accreditation, shows concern with the problem of possible false identity of the individual taking the test. Around 57% of the courses analyzed that apply on-site final exams also evaluate their students throughout the course, that is, take account of their participation in chats, forums and other activities (chart 6).

All of the courses that apply on-site exams also compute students' final grades by means of a set of evaluations, including tests, participation in chats and forums, exercises, on-site classes and a term paper, with the exception of one of the courses analyzed here. This term paper, at Specialization courses, corresponds to the preparation of a thesis.

Only 13% of the courses analyzed here apply distance final exams. Short-duration courses, like Extension ones, apply at least one distance exam in 50% of cases.

Table 9: Evaluation by a set of grades

Tests, Participation and Term Paper	Fully Distance	Semi on-site
No	12.77%	4.26%
Yes	17.02%	65.96%
Total	**29.79%**	**70.21%**

As can be seen, the majority of semi on-site courses (table 9) elects evaluating students by means of the analysis of a set of grades given throughout the course.

9. Cost

a. Cost for students

The price of the Master's course is the highest, at an average R$ 6,000 (chart 7). In addition to these, Specialization and Undergraduate courses also charge high prices as compared to the rest of the sample. Such high cost can be explained by the fact that they are longer, with over 360 hours, which requires lots of work-hours including both materials development and tutoring. Around 40% of the courses in the sample are free of charge.
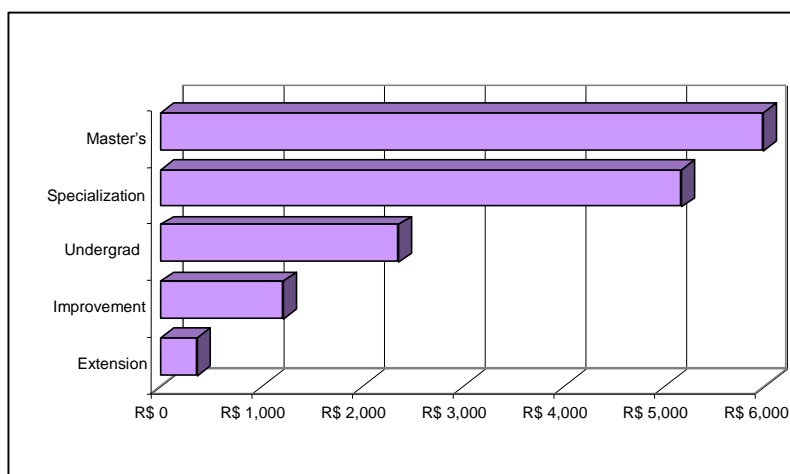
Chart 7: Average Price Charged

The most expensive course in the sample is a Specialization course (MBA) but, in this case, this is not properly the experience of a distance course, but, rather, the use of distance tools applied to on-site courses, that are offered traditionally at the HEI.

Therefore, considering the distance courses in the sample, the highest cost for students is that of the Undergraduate degree in Business Administration. The total cost of this course was R$ 22,640.00, at year-end 2002. Six hundred students are currently enrolled. Extension courses

are the briefest and charge the least prices from their students. Free courses can be found among

Undergraduate and Improvement programs.

Table 10: Average, Maximum and Minimum Cost per Course and per Region

Main Course	Region	Average Cost for Students	Maximum Cost for Students	Minimum Cost for Students
Improvement				
	Northeast	R$ 4,500	R$ 4,500	R$ 4,500
	North			Free
	Southeast	R$ 400	R$ 400	R$ 400
	South			Free
Improvement Total		R$ 1.225	R$ 4,500	
Specialization				
	Central West	R$ 4,400	R$ 4,400	R$ 4,400
	Northeast	R$ 2,700	R$ 2,700	R$ 2,700
	North	R$ 1,985	R$ 3,100	R$ 870
	Southeast	R$ 7,047	R$ 25,000	Free
	South	R$ 4,385	R$ 4,450	R$ 4,320
Specialization Total		R$ 5.176	R$ 25,000	
Extension				
	Northeast	R$ 253	R$ 400	Free
	Southeast	R$ 413	R$ 900	Free
	South	R$ 393	R$ 1,000	Free
Extension Total		R$ 368	R$ 1,000	
Undergraduate				
	Central West	R$ 22,640	R$ 22,640	R$ 22,640
	Northeast			Free
	North			Free
	Southeast	R$ 1,011	R$ 1,905	Free
	South	R$ 2,145	R$ 7,380	Free
Undergraduate Total		R$ 2.372	R$ 22,640	
Master's				
	Southeast	R$ 6,000	R$ 6,000	R$ 6,000
Master's Total		R$ 6.000	R$ 6,000	R$ 6,000
Grand Total		R$ 3,028	R$ 25,000	

10. Management of the Courses Offered

a. Number of people involved in the process

Considering the great number of students enrolled with distance courses at Public HEIs

(in one case, the course is offered to 17,000 students), there is a clear need for a large number of

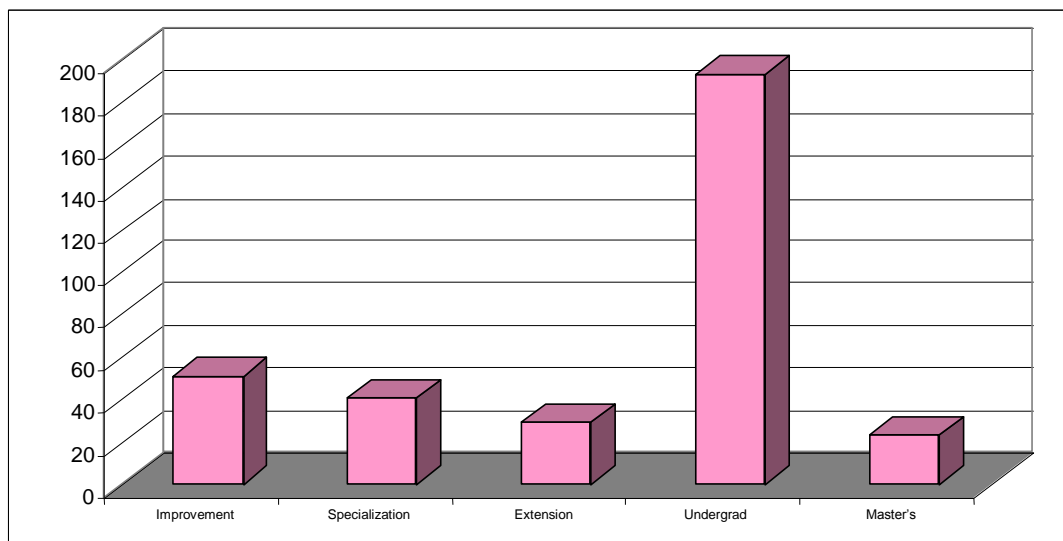people involved in the distance education process, an average 193 individuals (chart 8).

Chart 8: Average Number of Individuals Involved per Course Type

It is much harder work to develop a distance course than an on-site one; the process always involves large numbers of individuals. Adding the number of employees involved in distance courses (4,539 individuals) to the number of professors (1,311), a total 5,850 people are involved in Distance education in Brazil, considering the sample at hand.

Conclusions

The results of the survey indicate that the impressive growth of the demand for distance courses in Brazil is due to several factors, such as adults' need for constant learning, recycling knowledge, the need for specialized knowledge, and the flexibility of access due to the overcoming of physical barriers between students and HEIs.

This study took place in two stages: the first consisted in assessing the current situation of courses at the Higher Education Institutions (HEI) that use Distance education (DT); the second involved comparing the characteristics of the teaching methodologies chosen and the courses offered. To accomplish this, an exploratory survey was conducted involving countless visits to and non-structured interviews at Brazilian HEIs adopting distance teaching.

In the sample at hand, there are a total 80,929 students enrolled with distance courses in Brazil, the great majority of which at Distance Undergraduate Courses, answering for 85% of the total number of students. The large number of Distance Undergraduate courses encountered in all national regions may be explained by the demand created by the LDB (Law No. 9,394/96) for the graduation of grammar-school teachers.

Interpretation of this Law changed in September 2003. According to the new construction, the LDB does not require grammar-school teachers to have higher education degrees, and this may change the scenario for Distance Undergraduate Courses offerings in Brazil. But the demand for distance teacher training should not drop, as there are now around 900 thousand public system teachers who lack higher education degrees, according to data from MEC (2003) and Distance education may reduce this figure considerably.

All of the public HEIs that offer distance Undergraduate degrees use practically the same teaching/learning model, defined by the following characteristics: all of the courses are semi on-site; course contents are printed and distributed to students; they use the Internet as a medium for student-professor interaction; most use videoconferencing or teleconferencing to teach distance classes; none offer tutoring by the course's content teacher; most use proprietary platforms, that is, an internally developed teaching environment; they have around 58 thousand students enrolled and close to 900 graduates; and all of these HEIs use on-site exams, but students' final grades also take into consideration a set of evaluations including tests, participation in chats and forums, exercises, on-site classes and the term paper submitted by each student.

Note that, among all of the courses analyzed here, the ones most sought after in Brazil are longer ones, with more than 360 class-aula, which contradicts the notion that Distance education

is most often associated with brief training programs and courses, during which students would take part in no on-site meetings with tutors or professors and exams, for example.

In general, distance courses are all too recent to HEIs , as most of these are at their second or third classes. This may explain why the dropout rate is still very high in some cases, at around 68%. The lowest reported dropout rate was 1%. At courses with lower dropout rates, there is very intense interaction among course participants and this leads to the conclusion that students who feel "abandoned" give up more easily. Note, also, that class-size ranges widely: the largest group has 17 thousand, and the smallest one a mere 30 students. Around 40% of the courses analyzed here are free of charge.

Given the current status of higher education in Brazil, requiring a marked growth of the number of vacancies in coming years, DT might be used to expand the range of the courses offered by HEIs, giving interested students better chances of acceptance.

Among the challenges DT poses to HEIs, one of the most important is student motivation, as there is no daily contact with either professors or classmates. Professors can enhance motivation through constant feedback and encouragement of debate among students. Students need to recognize their strengths and weaknesses, as well as understand the course's learning objectives. Professors/tutors can help in this sense by playing the role of facilitators. By giving opportunities for students to share their learning objectives, they increase motivation.

It is worth noting that, in the future, the benefits of implementing ICTs at educational processes will also be felt in on-site teaching. Changes to traditional education are being implemented little by little, in a gradual manner, by the application of ICTs to education. In this sense, Distance education has contributed much to this restructuring, as it requires a different stance from professors and students alike as regards the teaching methodology.

But the imperative, these days, is not just learning, but learning how to learn and, to do this, the pedagogical relationship must be carefully structured, with methodological base and planning for each course. Professors will bear the brunt of the reconstructive effort in this process, as they will need to merge all of the modern theories of learning to achieve the objectives of the courses. Since learning will become a life-spanning activity, an environment must be developed to enable the parties involved in the process to share their experiences, leading to the creation of learning communities. The commitment of students and professors will be decisive in this teaching process. But despite all of the existing and available technology, we must never forget that the human element is still the crux.

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