

The Technological Consolidation of UNED of Spain

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Volume 2, Number 1, July 2001

URI: <https://id.erudit.org/iderudit/1073117ar>

DOI: <https://doi.org/10.19173/irrodl.v2i1.29>

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Publisher(s)

Athabasca University Press (AU Press)

ISSN

1492-3831 (digital)

[Explore this journal](#)

Cite this article

Garcia Aretio, L. (2001). The Technological Consolidation of UNED of Spain. *International Review of Research in Open and Distributed Learning*, 2(1), 1–19. <https://doi.org/10.19173/irrodl.v2i1.29>

Article abstract

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The Technological Consolidation of UNED of Spain

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Abstract

This article discusses the role of the technologies that have been utilized to advance distance teaching and learning by the National Distance Education University (Universidad Nacional de Educación a Distancia – UNED) of Spain. Following a description of UNED's historical development and organizational structure, UNED's experience with various educational media is discussed. Printed teaching materials, in the form of didactic units, were one of the first methods to be utilized when UNED began its operations in 1972. In turn, the role of radio and audio recordings, television and video recordings, telephone, videoconferencing, computer systems and computer-mediated communications are also described. UNED's pioneering projects, including the virtual classroom, virtual campus and a program for the physically handicapped, are also detailed. Recent experiments include providing access to radio and television programs on the Internet and adoption of WebCT. On the horizon for UNED are portals for cellular phones using WAP technology and gearing up for multiple applications in accordance with Universal Mobile Telecommunications Technology (UMTS).

Introduction

The National Distance Education University of Spain (UNED) possesses all of the general and genuine characteristics of public Spanish universities with respect to academic and financial economy, legal status, full teaching and research functions and its authority to award university degrees at the same official level as those of the other universities. At the same time, it is a unique institution, differentiated from other universities by: (a) the most common target students, (b) the media utilized in teacher/student relations, (c) its service area and territorial structure, and (d) one of its categories of professors, namely tutors. Today it is the public Spanish university with the greatest number of students, absorbing 10% of the Spanish university student population. It imparts credit and non-credit, both formal and non-formal, instruction throughout Spain, and in a growing number of foreign countries. Today UNED offers 20 degrees and close to 500 non-credit courses for professional development. It is possible today to enroll in one of 20 official different degree programs and approximately 500 non-formal professional development courses. UNED currently maintains

70 associated support centers in Spain and overseas. In 1999, 189,879 students were taking courses at UNED. Since the creation of UNED in 1972, a total of 45,000 students have completed studies for their first degree and 1,200 students have completed their doctoral studies.

Precedents

Prior to the establishment of UNED, Spain lagged behind other countries in terms of higher education. Recognizing the necessity to open up the structural rigidity of the existing higher education system, the General Education Law was passed in 1970. Innovative for its time, this law referred to education as a lifelong, unfinished task and emphasized, among its basic objectives, offering equality of educational opportunities to all, and an ample range of lifelong education activities without limitations other than those of capacity to study (García Aretio, 1985, 1986). Another innovative feature of this law was the goal of offering continuing study opportunities via correspondence, radio, television, and other modalities to those unable to accommodate the calendar and regular schedules of conventional higher education institutions.

In order to take advantage of provisions in the last development plan of the General Franco dictatorship, and to comply with the visionary objectives of the General Education Law, an official commission was appointed to establish distance education delivery and so increase access to university education. This commission advised institutionalizing within the educational system a method of teaching that had already been tried with success in other countries. The intent was to provide distance education through utilization of those technical media that were suitable for the university to extend its activity to sectors of the population that, for diverse reasons, faced serious barriers to participation in university studies. Among the official commission's objective were: (a) broad study of the academic and financial aspects of the project, (b) comparative analysis of what had been accomplished in other countries, and (c) organization of an effort to put into place a new institution. At that time (1971), there was talk of creating a new university called National Free Distance University (*UNILAD*).

Creation

In 1972 the Spanish government passed a law authorizing the creation, within the 4-year period until 1975, of the National Distance Education University (UNED). The government did not wait too long to make this innovative university operational. The decree of creation implemented the political will expressed in the General Education Law, calling for the birth of a unique higher education distance institution; in that same year, 1972, UNED was created. This decree

of 1972 opted for distance teaching not in a dual or mixed mode (institutions that impart both face-to-face and distance instruction), but a unique and autonomous model exclusively for the delivery of distance teaching. Rather than overload the existing universities, this new institution would possess a technical, methodological and administrative organization appropriate to distance teaching.

According to the decree of creation, parity was to be achieved in all respects with the rest of the Spanish universities. UNED faculty would come from the identical bodies as the conventional universities. The requirements to be a UNED student, contemplated in the decree of creation, were to be the same as those required for access to conventional university education. The study programs offered, degrees awarded, and the tests and examinations given to students would all be the same as those in the conventional universities. A new decree of 1974 established the legal framework for the university's functioning and granted approval of its statutes; these are still in force today. Except for the peculiarities of schedules, calendars, methods, and teaching regimen, the initial legislative norms that established the academic structures, teaching activities, and instruction for UNED are the same as for other universities.

The statutes in force today were approved in 1985. Based on the Law of University Reform of 1983, they stipulate the objectives that UNED is expected achieve in order to implement its mandate. The objectives and functions assigned to UNED are as follows:

1. To facilitate preferential access to university teaching and the continuity of the studies for all persons who are capable of pursuing higher studies and who are not able to attend university classrooms because of work, residence, finances, or similar considerations.
2. To establish and develop programs of lifelong education, and cultural and professional development.
3. To utilize the most suitable techniques and experiences for teaching at a distance as well as to try out new educational models of service to students and to other universities and institutions with which agreements of collaboration and assistance may be established.
4. To facilitate the creation of a broad and pluralistic university community founded on scientific and cultural knowledge that can serve to unify and promote the progress and solidarity of all regions and peoples of Spain.
5. To develop scientific research in all areas and levels.
6. To support and stimulate lifelong education, as well as update and promote the teaching, research and administrative personnel of the university.

Central and Peripheral Structure of UNED

The characteristic of university autonomy specified in the General Education Law of 1970 that gave birth to UNED, became a reality with the University Reform Law of 1983. This legislation indicated that regarding UNED, the general courts and government of the country assumed the competencies that this law attributes to the legislative assemblies and governments of autonomous communities. Similarly, this law affirmed that UNED was to impart instruction to all of the national territory. As a result, UNED aspired to be a university of and for all Spanish citizens, irrespective of their place of residence.

As is with the case with other public Spanish universities, UNED, therefore, has autonomy in a number of areas, including: (a) statutory and governmental autonomy; (b) academic and instructional autonomy; (c) autonomy in finance and administering its resources; and (d) autonomy to select and promote professors according to the principles of merit, capacity, and non-discrimination that apply to jobs within all state supported institutions (García Aretio, 1995).

A unique feature of the university is its robust network of associated centers that are essential for efficient application of the model. As important as these centers are from the administrative point of view, their function is of even greater relevance as support for student learning. These associated centers offer students the necessary tutorial orientation for studies, access to a text and media library, as well as opportunities to participate in different cultural activities. As well, the associated centers provide UNED students the academic and cultural environment that is part of a complete university education. More than 70 associated centers and extensions of these centers comprise a closely woven network that covers all of the Spanish territory. They fill an important role in promoting culture and learning within their respective geographical areas, as defined in the royal decree of 1995.

Students who live outside of Spain can access the educational offerings of UNED through the network of centers maintained by the university in:

- Germany (Bonn)
- Argentina (Buenos Aires and Rosario)
- Belgium (Brussels)
- Brazil (Sao Paulo)
- France (Paris)
- Mexico (Mexico City)
- Portugal (Lisbon)
- the United Kingdom (London)

- Switzerland (Bern)
- Venezuela (Caracas)
- the United States (Miami)
- Morocco (Tangier)
- Equatorial Guinea (Malabo and Bata)

From an academic point of view, the associated centers depend on the university and its government structure, and the professor/tutors are expected to follow the directives set by the corresponding departments at headquarters. In economic-administrative aspects the centers depend on their respective boards, comprised of representatives of UNED and other institutions that collaborate with the centers, as a channel for participating in the society of university life (García Aretio, 1996).

At the beginning of the 21st century, there is an effort to consolidate the autonomy of this university. To be the only university with claim to all the national territory requires an effort to fulfill one of the statutory mandates of the university, that of creating a university with a broad and pluralistic community, founded on scientific and cultural knowledge, that unifies and promotes the progress and solidarity of the regions and peoples of Spain.

Technology in the Beginnings of UNED

It has been indicated that the General Education Law of 1970 charged UNED with the goal of offering opportunities to those who cannot attend conventional universities to pursue studies, via teaching by correspondence, radio, and television. There is no doubt that this article of the General Education Law, written more than 30 years ago, was innovative. It contemplated the possibility of continuing university studies through use of innovative teaching and learning technologies. To fulfill this objective, an administrative commission was constituted in 1971 and charged with establishing within the educational system, a method of distance teaching using whatever technical media might be suitable for fulfilling that commitment. Subsequently, the UNED statutes of 1985/86 indicated that distance education presumes the application of specific teaching methodologies, integrates communication systems and resources, and utilizes print media, audio-visual, and new technologies.

Since the creation of UNED there has been recognition of the need to integrate modern technologies into the processes of teaching and learning. Since 1973, beginning with studies of law, philosophy, and letters, written teaching materials called *didactic units* have been adapted to distance technology (Davis, 1990;

Duffy & Waller, 1985; Felker, 1981; Landry, 1985; Lockwood, 1994; Race, 1998; Rowntree, 1986, 1990, 1994). In some cases this material was self sufficient and in others it was necessary to refer to specific texts that complemented or broadened the explanations referred to or presented in the didactic units (García Aretio, 1996). These units, didactic guides, distance evaluation notebooks, addenda, and so forth, have been among the print materials directed to student learning. In 1997 UNED's University of Distance Education Institute provided professors with a manual of suggestions for developing didactic units and didactic guides. The recommendations in this manual could be equally applied to the development of hypertext material (García Aretio, 1997b).

In all distance education universities, even in the information age, the book continues to be a fundamental element, progressively complemented with audio-visual and computer resources. In fact, UNED today has the largest university press, by volume and diversity of production: from books of every type (didactic materials, books of readings, journals, etc.), to ephemeral and annual publications (large circulation institutional guides to degree programs, programs of courses, etc.). In 1996, the UNED Printed Media Center (CEMIM) began the important task of improving the quality and quantity of the printed didactic materials produced by UNED. Notwithstanding all these developments, almost 30 years after the birth of UNED, there are still difficulties that prevent UNED faculty from accepting even minimal methodological criteria to adapt their course materials for distance education. Academic freedom, very respected in Spain, prevents professors at UNED (as UNED is a public university) from presenting their text in a specific manner when that is not their desire. As a consequence, despite the sound scientific quality of the UNED materials, their methodological quality varies greatly from subject to subject.

Radio and Audio

The advent of radio at the beginning of the 20th century, and its capacity to reach everyone, makes it a medium worthy of consideration to advance distance education (Grundin, 1984). In 1974 UNED created The Technical Department to assume management of services such as audio-visual materials, and distribution of teaching activities. Its initial act was to focus on daily radio programming, which UNED has offered ever since through a chain of public radio stations of the National Radio of Spain. Subsequently, the Technical Department has become the Center for Design and Production of Audio-Visual Materials (CEMAV).

Since 1974 all radio programs produced at UNED have been recorded and sent to the associated centers so that students can listen to or record them. At present, CEMAV has approximately 20,000 cassettes of recorded radiophonic programs from past years (García Aretio, 1997a). Although the majority of radio programs have been recorded and used asynchronously there have also

been some interesting experiences with UNED broadcasting some synchronous, direct and interactive programs (Norman, 1993). Admittedly, their broadcast could not be justified given their greater cost and the difficulties of having the broadcasts accommodate students' availability. Therefore, the majority of radio projects have involved asynchronous distance systems. With respect to this medium, UNED faces problems of a different kind. During its first 25 years of existence UNED had to negotiate almost annually with Spanish Radio Television to which National Radio of Spain belongs. Although the service has never been suspended, it has been subject to changes of schedule and transmission by Spanish Radio Television. Certain radio programs have been broadcast for which printed text would have been sufficient. In a university with such a large number of professors, some take advantage of this medium to the maximum, but many of them do not apply the basic criteria advised for the didactic use of this medium. Likewise, it should be emphasized that the radio time that the state broadcast service provides to the university is minimal, compared with the enormous number of UNED degrees, programs, and courses.

In addition to programs for broadcast, CEMAV has also been producing a number of audio cassettes each academic year. For many years professors have responded to a call to employ this auditory resource in their courses. Today there are some 40 collections of cassettes produced for teaching in different subject areas. Although radio is a little-used medium at UNED today, two decades ago it was believed, as Race (1998) said, that if this medium were utilized to activate learning in students, it would help significantly and at a low cost.

Television and Video

Television and video are two media that are linked together. Video was born related to television, even if it was to record, store, and reproduce television broadcasts. It also required a television receiver for its diffusion (Cabero, 1998). Many homes today have these two technological media, whose educational possibilities are undeniable (Bates, 1987; Cabero, 1994; McKenzie, Postgate & Schuphan, 1979; Race 1994, 1998). UNED has been developing television programs since the 1991/92 academic year, and in that year it maintained a periodic and experimental presence through *Telemadrid, A Saber (To Know)*. During the next two years (1992/93 and 1993/94) there was a weekly collaboration with the educational program of Televisión Española (TVE) and *La Aventura del Saber (The Adventure of Knowing)*.

With operation of the satellite *Hispasat* in January 1996, and the classical channel of TVE, hour-long programs *Television Educativa* (Educational Television) were broadcast by UNED Monday to Friday, and Saturday mornings. During the 1997/98 academic year, these broadcasts were moved to channel 2 of TVE, where they are now broadcast on weekends. All programs are produced entirely in UNED installations through the collaboration of professors and technical

personnel (García Aretio, 1998).

The scarce time that Spanish television provides for UNED programming means that few areas can be provided through this medium. Additionally, Televisión Española recommends that programs be of broader interest than purely teaching. There are a number of UNED professors who are interested in utilizing television as a didactic medium for communication with their students. Many more do not demonstrate that interest; it is not known whether this is due to the difficulty of finding space in the broadcasting schedule or because professors are more comfortable not using television.

The videos that UNED produces deal with specific themes related to different subjects. In some cases, there are collections that have been expanding course by course. Presently there are around 200 didactic videos that have been produced by UNED. Many have won national and international prizes.

Advanced Telephony

By necessity, conventional telephones are used in every distance institution, above all, for direct personal attention to students. Since 1996, UNED's headquarters has also provided advanced service to support communication and transfer of data among computers, as well as automatic telephone answering for access to information stored in a computer in voice form. The two most common uses of this service are for transferring general information within the university, and to provide information to students about results of face-to-face examinations.

Video Conferences

With the establishment in 1993 of the Digital Network of Integrated Telephone Services (RDSI), UNED began grouped video conferences in October of that year. Now called the Educational Videoconferencing Network (REVC) and comprised of more than 60 installations at the headquarters (during the 1998/99 academic year), the network has been extended to all associated centers. This expansion makes the REVC of UNED the largest videoconferencing teaching network in Europe.

This network permits presentations and discussions, work meetings among professors at the headquarters and associated centers, and on an exceptional basis, some "face to face" examinations. However, its most frequent use has been for colloquia or meetings between professors and professor/tutors at headquarters, and their students at associated centers (García Aretio, 1998). The difficulty with this type of service is that, in order to participate in the numerous sessions held at the end of the year, students must go to an associated center. This re-

sults in inconvenience for students who must be in a specific place at a specific time, thereby reducing the time and space flexibility. These meetings, however, offer the advantage of face-to-face interaction among students, their tutor, and across the screen with the professor at headquarters (Sevillano, Carpio & Sánchez, 1998).

Information Systems and Telematics

Although some non-credit programs, and courses related to evaluation and learning, experimented with computer assisted instruction in the past, UNED has not had much experience with this technology. With the establishment of the University Distance Education Institute (*IUED*) and between the years 1994 and 1999, a number of professors developed multimedia programs focused on specific course themes. In the final years of the 1990s, an increasing number of UNED courses included a CD-ROM.

UNED has had a central server for *video text* since 1990. Through this service, connected students have had access by computer to general information, including: (a) grades, (b) preregistration, (c) scholarships, (d) courses, (e) student assistance, and (f) employment openings. For each faculty and school there is also a server where registered students can access specific information about the subjects in which they are enrolled, receive results of their face-to-face examinations, communicate with professors through electronic mail, and so forth. (García Aretio, 1994).

Unfortunately, the explosion of the Internet has caused a progressive decline of this video text service, given its slowness and the high cost of a telephone connection. In addition to experiences with video text, UNED has initiated other means of interaction between professors and students via computers. One of these involves connecting computers with a central computer, via modems. This gives many people access in order to ask questions or express their opinions. This bulletin board system was used at UNED in some graduate level courses from 1994 to 1997, with good results.

Technological Innovations, Proposals, and Trials

Since the 1997/98 school year, all professors and administrative services at UNED's headquarters have been connected to the Internet and local networks. Since then, all UNED teaching staff have also had remote access from home to the UNED network. This access to global and local networks constitutes a major advancement for teaching and research (García Aretio, 1998). During the 1997 and 1999 school years, UNED also experimented with two types of virtual teaching: the *virtual classroom* and the *DEMOS Project*, as well as an

interesting project called *FOTEUMIDIS*.

The Virtual Classroom

The objective of UNED's virtual classroom, which began in the 1998/99 school year, was to introduce and progressively integrate multimedia and Internet applications into teaching practice at UNED. The aim of this plan was to reinforce written materials with multimedia elements through the use of CD-ROMs, and to improve professor/student communication via the Internet/Infovía. A common and personable user interface was available to each professor. This interface provided a system for student self-evaluation of learning based on a large test bank, as well as a structured and transparent system of questions and answers for all students. The application required students to register only once as a UNED web user, and asked students for information about all the courses in which they had been enrolled. The application included a database for professors to store the results of their students' self-evaluation exercises as well as a means to send electronic mail messages. The environment in which students carried out their studies corresponded with a typical desk, and contained a notepad, calendar, agenda, clock, calculator, and inbox. From their desk, students could access other graphic environments such as faculties, virtual classrooms, and associated centers. All virtual classrooms contained a series of common elements, including (a) a window for the professor; (b) screens for presenting transparencies, slides, graphics, and diagrams; and (c) a bulletin board with general information and news (García Aretio, 1998). Multimedia materials developed for the UNED virtual classroom complement the print materials that accompany the units and study guides. To introduce this project, the IUED planned a broad program of preparation for all professors who wished to participate in the initial phase in 1999. Because this year was an electoral year in UNED (elections for the senators, who elected the new rector, were held in January 1999), it was decided to postpone the launch of the Virtual Classroom until after the new team was in place.

DEMOS Project – The Virtual Campus

The objective of this second project, conducted by some departments and associated centers on a trial basis from 1996 to 1998, was to increase quality of administrative and academic support to students. Although the DEMOS Virtual Campus project was one more tool in UNED's teaching system, it was not anticipated that the entire system would re-organize itself around this new tool (Peire, et al., 1999). By entering DEMOS through their computer, students' experience of the virtual campus could be described in the following manner:

- First, they will find the Office of Information and Administration of DE-

MOS. There, the mandatory access permission will be given.

- Once the permission has been obtained, students will find a bulletin board where they will find course information.
- Students will be able to access the virtual library and asynchronous study room. They will be able to engage in self-study utilizing didactic material as in a conventional library, as well as search information such as text, images, videos, recorded courses, and so forth.
- Electronic distribution of materials takes place in the virtual bookstore.
- Students can enter virtual distributed classrooms where professors and students are connected online through terminals. While connected, students may share applications, tools, and material in a number of formats (text, programs, images, audio and video), and they may also participate in multi-point videoconferences. The professor plays the role of session director.
- Students can also visit professors' virtual offices to participate in tele-tutorials through personal communication (point-to-point), whether asynchronous (as electronic mail but with multimedia characteristics), or online synchronous communication.
- Finally, students can visit the café room, a form of discussion where students can maintain contact via electronic mail and create newsgroups very similar to those that exist on the Internet.

Education for the Physically Handicapped (FOTEUMIDIS)

The new teaching technologies can help people with disabilities make progress within the educational and socio-work world. Project *FOTEUMIDIS*, initiated in 1997, draws on all of UNED's media to deliver audio and video instruction through the RDSI public line (García Aretio, 1998). This university-level teaching is directed toward those affected by some form of disability or handicap. The objective is to make it possible for disabled individuals to study via *multi-video conference* through RDSI and so obtain the greatest results with the least effort. Collaborating with UNED in this project are the Ministry of Work and Social Affairs (INSERSO), Telefónica, the ONCE foundation, IBM, Alcer Murcia, and *INSALUD*.

Internet and UNED

As indicated above, UNED has been involved with the Internet since the 1996/97 school year. Specific courses, primarily in the area of non-credit instruction, have

been progressively incorporating educational methodology based on communication through the Internet. Some of the more significant advances supported by the network are highlighted here.

UNED Radio

Since 1998, UNED has offered radiophonic programming through the Internet. Until 1998, UNED programs were broadcast by National Radio of Spain, but broadcasts were difficult to access, for some, and impossible to hear for others. Conscious of the value that its programs had for students and for specific publics interested in scientific, cultural, and social matters, UNED considered it appropriate to extend these programs more broadly through the Internet. Some 1,500 hours of prerecorded programs on diverse topics have been collected at the UNED radio site. Radio UNED on the Web is configured to make it easy to quickly locate different transmitted programs. It is possible to access programs that are broadcast weekly on RNE, or to use a simple search engine to locate programs by subject, faculty, professor (author), and by keywords (Calés, 2000). It is possible to access all UNED radio programming either online, or downloaded and listened to away from the connection. This service has been in place for 3 years, and students have responded very favorably. While integrating this service into the media of UNED, no particular difficulties or problems have been observed.

Tele-UNED

The objective of this new link on UNED's homepage is threefold: (a) direct coverage of the academic and cultural happenings organized by the university; (b) online access to UNED's extensive videoteca, organized by a broad spectrum of scientific and cultural themes; and (c) provision, via the Internet, of delayed educational television programming which for some time has been broadcast on the second channel of TVE on weekends. These online video presentations provide complementary synchronous support. In the direct broadcasts now possible, student spectators or participants can interact with the principal actor, speaker, lecturer, or professor in real time through electronic mail (Calés, 2000). To date, this service has not been duly exploited, and UNED can add more personal service and media to TeleUNED. Consolidation of the different projects relative to Internet teaching culminated in 1999 with the initiation of a strong process of institutional adaptation to the world of the Internet. The new institutional governance team of UNED understood the importance of a unique virtual platform of knowledge management that would be easy for students to use and for professors to employ as they produce Web-based courses.

After numerous analyses, UNED adopted a Spanish translation of WebCT (G.

Ruipérez, 2000), the web-course tool developed at the University of British Columbia. Since October of 2000, virtual teaching has been supported on the Internet for some 20,000 students in their first courses of degree programs, a good number of students in doctoral courses, and others enrolled in non-credit courses. This platform is integrated into *CyberUNED*. With almost 200,000 students enrolled at this university, in its offering of virtual courses and teaching, UNED will soon become one of the leading universities in the world. To accomplish this objective UNED has contracted with a second Internet provider, the IRIS network, through which all the Spanish universities are connected to the Internet. The IRIS network would collapse if the 200,000 UNED students were to seek a connection. At present, these connections have been enriched by the formation of an Intranet among all the associated centers of UNED. This way, students who have difficulty connecting to the Internet from their homes or workplaces may do so at high speed through the more than 60 associated centers in Spain. At the same time, UNED is developing its own platform – *TecInfo*. As this is still in development, there is not yet enough information available to discuss it in detail.

WAP and UMTS Technology

Given its massive introduction in society, the mobile telephone is becoming an important way to access to the Internet (García Aretio, 2001). With this technology, the Internet can reach everywhere, without cables or a computer. As with the other technologies described here, UNED hopes to be at the forefront with this technology. Therefore in 2000, a mobile telephone portal based on WAP (Wireless Application Protocol) was created to offer services to students, including consultation about marks in specific courses, and information about the university. Recently, WAP technology has been used to enable tutors to leave messages for their students via mobile telephone. With this technology, UNED has become the pioneer in Europe in this field; this will be verified in the near future, as mobile telephones become the most common means of accessing the Internet, ahead of the personal computer. But given a screen that permits only six lines, a limitation imposed by WAP technology, the amount of information that can be transmitted to these terminals is limited. However, with the imminent emergence of the UMTS (Universal Mobile Telecommunication System) it will be possible to provide all types of information through high speed mobile terminals, without the limitations that the WAP technology now imposes (A. Ruipérez, 2000). UNED is already experimenting with this technology, in order to offer this advanced service of mobile connection to the Internet as soon as possible.

Other Innovative Proposals

- The ability to publish different programs and courses on DVD is expected soon. The first educational DVD was edited and published in 2000, and distributed by a Spanish university with tracks for audio as well as Spanish, English, and French subtitles.
- The development of administrative procedures for online registration and payment of fees through the Internet will be introduced in the 2001/2002 academic year. Preenrollment of students already has been conducted by this means for the past 2 years.
- Students soon will be able to acquire print and audio-visual materials published by the university via the Internet in the same way that they make other purchases on the Internet.

Conclusion

As one of the world's first unimodal distance universities (teaching only at a distance), UNED has been adapting to technological advances, despite difficulties imposed by huge increases in student numbers and scarce budget allocation from the government. Today UNED offers students in Spain and abroad (primarily in Iberoamerica) teaching and learning features that can be summarized as follows:

- A powerful publisher of print material (didactic units, guides for different degrees and different collections, etc.), radiophonic programs broadcast on the National Radio of Spain and over the Internet, and television broadcasts on Televisión Española, followed closely by the Internet.
- Collections of cassettes and didactic videos. The latter can be seen on the Internet.
- A powerful videoconferencing network connecting all the associated centers. These sessions can also be followed on the Internet.
- A virtual learning platform based on the WebCT environment by which more than 20,000 students are now attending (10% of UNED's total) and that progressively will be offered to all students.
- An online registration system.
- A portal for mobile telephones that uses WAP technology.
- Preparation for the next technological advance, UMTS.

Today, through the Internet, UNED provides broad information, elements for education, and research in the area of distance education. A compilation of all of these possibilities can be seen on the UNESCO Chair for Distance Education website, with headquarters at UNED.

Electronic Addresses of Interest

UNED, main [<http://www.uned.es>]

CiberUNED [<http://virtual.uned.es/webct/public/home.pl>]

RadioUNED [<http://info.uned.es/cemav/radio.htm>]

TeleUNED [http://www.teleuned.com/26_mayo/2000.htm]

Televisión educativa [<http://info.uned.es/cemav/tv.htm>]

Videos UNED [<http://www.uned.es/cemav/videos.htm>]

Audio UNED [<http://www.uned.es/cemav/audios.htm>]

Videoconferencias [<http://www.uned.es/cst/>]

CampusWAP [<http://campuswap.com/index.html>]

Publicaciones de la UNED [<http://www.uned.es/publicaciones/>]

Cátedra UNESCO de Educación a Distancia [<http://www.uned.es/catedraunesco-ead>]

Legal Documents Related to the Creation and Development of UNED

- Ley General de Educación (LGE) 14/1970 de 4 de agosto, publicada en el Boletín Oficial del Estado (BOE) de 6 de agosto de 1970.
- Decreto 1106/1971 de 6 de mayo (BOE de 1 de junio de 1971) que crea la Comisión Gestora para el establecimiento de la modalidad de enseñanza universitaria a distancia
- La Ley 22/72 de 10 de mayo (BOE 20 de mayo) por la que se aprueba el III Plan de Desarrollo Económico y Social para el cuatrienio 72/75, autoriza al Gobierno para crear dentro de ese cuatrienio, entre otras, la *Universidad Nacional de Educación a Distancia*.

- Decreto 2310/1972 de 18 de agosto (BOE de 9 de septiembre de 1972) por el que se creó la Universidad Nacional de Educación a Distancia (UNED).
- Decreto, el 3114/1974 de 25 de octubre (BOE de 14 de noviembre) se establece el marco legal mediante el que ha venido funcionando la Universidad hasta la aprobación de sus Estatutos e incluso hasta nuestros días.
- Los Estatutos de la Universidad Nacional de Educación a Distancia fueron aprobados por Real Decreto 1287/1985, de 26 de junio (BOE de 31 de julio) y complementados por el texto aprobado por Real Decreto 594/1986, de 21 de febrero (BOE de 28 de marzo).
- Ley Orgánica de Reforma Universitaria de 25 de agosto de 1983 (BOE de 1 de septiembre de 1983).
- Real Decreto 1317/1995, de 21 de julio (BOE de 10 de agosto) por el que se crea la Red Básica de Centros Asociados y perfila el régimen de convenios.

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Citation Format

Aretio, Lorenzo (July, 2001) The Technological Consolidation of UNED of Spain.
International Review of Research in Open and Distance Learning: 2, 1.
<http://www.icaap.org/iuicode?149.2.1.11>