Committee 1
The Information Revolution,
Higher Education and Research

DRAFT--Oct. 15, 1997
For Conference Distribution Only

REFERENCE PAPER

Tele-Education: Alternative or Necessity?

by

Jacques H. Dubois
Project Director
Going the Distance Project
Public Broadcasting Service
Adult Learning Service
Melbourne, Florida USA

The Twenty-first International Conference on the Unity of the Sciences
Washington, D.C. November 24-30, 1997

Tele-Education: Alternative or Necessity?

Jacques H. Dubois
Project Director,
Going the Distance Project
Public Broadcasting Service (PBS) - Adult Learning Service

INTRODUCTION

The rising intensity of a new wave of technology, trends in economic globalization, demographic changes and enrollment shifts, combined with the pairing of education and economic success are changing the marketplace, the workplace, and somewhat more slowly -- even reluctantly -- our colleges and universities.

Higher education's somewhat slow adaptation to new imperatives is typified by its hesitancy to implement fundamental changes and to rely on a ponderous tinkering process where limited experimentation is relegated to peripheral activities, processes, and functions. To rectify the balance between continuity and change, higher education will need to bring new values into its core functions that address society's new imperatives and to integrate into its core extent peripheral functions like distance learning or tele-education.

In many respects, distance learning educators have been anticipating society's new imperatives and have been developing the strategies, programs, and services to meet the challenges described. In reality, the successful distance learning organization can be viewed as an information age microstructure or a transformation model for higher education in the 21st century.

THE NEW IMPERATIVES

Demographic Changes and Enrollment Shifts - Adults -- typically defined as those persons 25 years of age and older -- are going to college in larger numbers than ever before. According to the College Board (Aslanian, 1991), the proportion of adult learners in higher education has been rising steadily, approximately from 30 percent in 1970 to 40 percent in 1980 and to 48 percent in 1990. By the millennium, the majority of students in higher education will be 25 years of age and older. A College Board (Aslanian, 1991) study revealed that one of every 25 Americans who is 25 years of age and older enrolls in a college course or program producing more than 6 million adult learners annually. An overwhelming majority, 85 percent, of adult learners work, and most are employed full-time, outside or inside the home. Most adults are busy people juggling jobs, families, and studies; furthermore, the majority of adult learners are women. Moreover, because women are matching the rate of men in enrolling in college after high school graduation, and because they surpass men in enrolling in college as adults, women eventually will obtain more years of college education than men, thereby reversing a past trend.

Looking beyond the millennium to the year 2008, the nation's high school graduating classes will increase by more than 34 percent (Florida Post-secondary Education Planning Commission, 1995). Some states, like Florida, will experience dramatic increases. In the 13-year period of 1995-2008, Florida will witness a 51 percent increase in the number of students graduating from high school. This projected increase is a conservative estimate based on students already born or already in the education pipeline. Upon graduation from high school, many of these prospective post-secondary students will themselves become part-time students and will be learning in ways that are associated with those of adults.

Although we commonly associate part-time studies with older students, younger students are going to college part-time while they simultaneously work, raise families and assume the responsibilities of adulthood. As college tuition continues to increase at a faster rate than the increases in the cost of living, many students are compelled to forego full-time college enrollment in exchange for a combination of part-time studies and part- or full-time work. A recent U.S. General Accounting Office (GAO. 1996) report noted that tuition at public four-year colleges and universities rose 234 percent between 1980/81 and 1994/95. The GAO report also noted that during the same period, median household income rose 82 percent, the cost of consumer goods rose 74 percent, and the average student loan rose from $518 to $2, 417, an increase of 367 percent.

Trends in Globalization - Today, production, manufacturing, commercial trade, and information have globalized in a telecommunications-rich environment that transcends national and geographical boundaries. As American businesses restructure to meet the demands of a global economy, American workers face a future in which they must continually upgrade their knowledge and skills -- or learn new skills -- in order to remain competitive and to increase their earning power. In such an environment, American workers need to view education as a lifelong learning process, not as an "event."

As higher education restructures, the trend towards globalization invites educators to be sensitive to the challenge of developing individuals who are knowledgeable about the world and who possess skills, values, and commitment appropriate to living productively and harmoniously in the international economic and cultural community. Knowledge, writes management theorist Peter Drucker, has become the "key resource" of the world economy. The prospects are clear: to

compete and to succeed in the emerging knowledge-based economy, one must continually learn new skills and disciplines. This economic reality largely explains why increasing numbers of consumers of higher education today are job holders over the age of 25.

Pairing Education and Economic Success - The labor markets are changing and will continue to do so. However, the imperative of a knowledge-based world economy dictates a new philosophy recognizing that our entire population needs to be empowered to be as knowledgeable, competent, and inventive as the people of any other nations.

The loss of jobs, the changing of jobs, and the creation of new ones are catalysts that sent adults back to college. In general, working adults are motivated to learn by workforce or workplace demands, and, in a society that relies heavily on credentials, learning power is intrinsically associated with earning power.

According to 1994 U.S. Census Bureau figures, Americans with an A.A. degree earn on average about $24,000 annually; that amount is twice the annual salary of an individual who lacks a high school diploma and 30 percent higher than a person with merely a high school diploma. The facts show why a college education is attractive to workers who seek the personal satisfaction of earning a degree and the increased economic power it brings to those who upgrade their knowledge and skills in the workplace.

New Wave of Technology - At present, cable operators, telephone companies, direct broadcast satellite providers, and legions of technology leaders are all investing heavily in the development of high performance telecommunications links to the home and workplace while simultaneously advocating the creation of networks for the delivery of educational programs and services.

Today, millions of personal computers are connected to the Internet, creating a vast global network with an unprecedented opportunity to create and exchange information between homes, schools, colleges, businesses, libraries, museums, and other educational resources. Rich educational content is being added to the Internet daily, while the cost to access this information is decreasing. The magic of the silicon chip -- which has, for the same price, doubled in speed and capacity every two years -- has driven the development of the PC from a productivity tool, well suited to business functions, to an integrated information and communications tool or platform. The personal computer -- desktop and laptop -- linked to the ubiquitous networks is now used more and more as a telecommunications platform rather than as a computing tool.

Computers and telecommunications networks are shaping the design and the landscape of the workplace of the future. In the period of 1989 to 1994, the number of individuals who tele-commute to work has almost tripled from approximately 3 to 9 million. By the year 2000, there will be nearly 25 million tele-commuters and two-thirds of U.S. workers will be "knowledge workers" engaged in America's knowledge-based economy.

As our society continues to transition into the information age, we approach a new era of computing in which the advances in technology and the goals of education align so closely that we have an unprecedented opportunity to change the way we think and learn. Advances in technology have led to the acceptance of computers at home and in the schools, colleges, and universities. Approximately 40 percent of all American households now have one or more PC's, and a third more expect to purchase a PC within the next three years. Most parent cite their children's education as the leading reason for buying a PC. Already more than 200 million PC's

are in use worldwide, and the number is growing almost 20 percent annually (IDC, 1995). The PC is truly becoming a standard household appliance.

The workforce transition and the task of higher education is evidenced in the shift from unskilled to skilled labor. As of 1990, the percentage of unskilled jobs in the entire country has fallen to 35 percent, and it is expected to drop to 15 percent by the year 2000.

THE CASE FOR INTEGRATING TELE-EDUCATION INTO THE CORE OF HIGHER EDUCATION

As business and industry make greater use of information technologies, the expectations in the market place and the workplace are redefined. Consumers adapt to new applications of technologies and subsequently begin to transfer expectations to a variety of traditional environment, including higher education. As more working adults seek access to higher education, they are demanding more time- and place-independent learning options and technology-based institutional learner support services.

At the very moment that demand for information technology options is being vocalized, there are mounting pressures to reduce funds for brick-and-mortar solutions. While the history of American education revolves around formal, brick-and-mortar institutions, it seems apparent that learning will be considerably de-institutionalized, in the years ahead. As information technology becomes more powerful and pervasive, activities that have traditionally taken place in classroom- and campus-based settings will increasingly occur at-a-distance, in a learning-on-demand configuration.

In Florida, for instance, demand for higher education is being fueled by two phenomena: The first is population growth: each day, nearly 700 new citizens become residents of the state. A second is the need for adult lifelong learning that is emerging as a by-product of the shift in our nation's economy from an industrial to an information or knowledge-based economy. The average age of students in the Florida State University System is over 24; in the Florida Community College System, it is nearly 30. If the state (Florida State University System Distance Learning Task Force, 1995) were to continue addressing the growth in demand for higher education through building construction, the equivalent of two additional universities would be needed within the next several years, and capital expenditures on such a scale simply cannot match the pace of growth in the state. Hence, increasingly information technologies and distance learning are being seen as a powerful solution to the access crisis in Florida.

As more and more states, institutions, and countries face the dilemma of dramatic population growth and increasing demands on limited resources, policymakers will conclude that the solution of turning away qualified students is not an economically, socially, or politically valid approach. Moreover, it is hoped that educators will also redefine educational access and align it with the reality of the "new majority" of students and society's new imperatives.

According to the College Board (Aslanian, 1994), 60 percent of adult students are degree seekers. Yet, until recently, very few colleges offered adult learners the opportunity to complete an entire degree at-a-distance. Adult part-time learners currently require, on average, nearly six years to complete the course work for a two-year degree. Technology-enhanced learning has the potential to speed up this skill acquisition process. Higher education needs to adopt new core values that reflect the needs of society's new imperatives.

NEW CORE VALUES AND A NEW FOCUS FOR A NEW AGE

New Core Values - To excel in the 21st century, higher education must undergo a paradigm shift from an environment and culture that has defined learning as a "classroom process," shaped by brick-and mortar facilities and faculty-centered activities, to an environment defined by "learner-centered" processes and shaped by information technologies and ubiquitous asynchronous access to subject content material, learner support services, and technology-literate resource personnel.

Moreover, this paradigm shift will also necessitate an increased emphasis on customer service and value-added benefits as more working adult learners or sponsoring employers exercise their consumer rights and select from a wide range of educational providers whose programs and services can, and possibly will, transcend geographic boundaries, and be time- and place-independent, as well as responsive to their perceived education or training needs.

Predictably, change will be perceived as a threat to those who remain intellectually and emotionally vested in current processes and methods. To ease the transition and to facilitate change, higher education will need to devote greater resources to professional development; furthermore, compensation and rewards packages for personnel will require new incentives. Similarly, a large number of activities, funding formulas, and deeply ingrained processes or traditions, which are now sacrosanct, will need to be reviewed, revised, and occasionally abolished.

For most traditional higher education institutions, especially those that have existed under an umbrella of protectionist policies, the threat of a paradigm shift will be significant and unsettling. On the other hand, institutions that are restructuring to become more entrepreneurial, or agile and adaptive to the challenges of the information age, will reap the benefits from the opportunities created by the changing forces in our society -- enrollment shifts, globalization of the economy, technological innovations, and the pairing of education and economic success. Institutions that adopt new core values and integrate distance learning into their core functions will fare considerably better in what is projected to be a tumultuous period.

A New Focus: Degrees-at-Distance - To date, most distance learning programs continue to focus on the delivery of individual tele-courses or the delivery of an eclectic assortment of distance learning offerings. However, with the advent of the PBS Going the Distance project, approximately 170 colleges and universities now emphasize a focused curricular approach that enables students to pursue and complete entire degree programs at-a-distance.

By focusing on distance learning degree programs, the Project has raised awareness for distance learning in an unprecedented manner. Although tele-learning, educational technology, and distance learning have been part of the higher education landscape for better than a quarter century, the *ad hoc* nature of selecting and delivering courses or the limited scope of the programs tended to minimize their significance or relevance in a campus-centric world.

The degree focus advocated by the Going the Distance project has triggered, within the traditional higher education community, a rediscovery of distance learning and has reinvigorated the discussion about the role and scope of non-classroom-based learning. In the process, the discussion has raised questions which were never perceived to be significant institutional concerns

when the distance learning agenda was focused on the delivery of individual courses.

To date, the general assumption, in most institutions, has been that distance learning is a peripheral activity and that most distance learners should or would obtain traditional learner support services, such as: library and learning resources services, admissions, registration, academic advising, testing, counseling, and financial aid through conventional on-campus or off-campus outlets or venues. Similarly, it was expected that distance learning faculty would rely on existing institutional systems and methods to obtain the requisite faculty support services.

Although the Going the Distance project has created a major breakthrough in re-conceptualizing well-established tele-education programs and the delivery of distance learning offerings into degree initiatives, much of the distance learning agenda is still oriented to instructional and course delivery issues, possibly to the detriment of other compelling issues which require greater attention if our institutions are to serve the overall education needs of our constituents and are to remain viable organizations in a learning society.

The advent of the Going the Distance project and the availability of new communications technologies have raised important questions that will shape the future of distance learning and the evolution of higher education. Some of the questions deserving our attention are: If students have access to distance learning degrees, should they have access, at-a-distance, to all conventional learner support services? If not, is the institution's equity policy at risk? What technologies are best suited to provide comprehensive access to learner support services? Are the learner support services technologies compatible with those used for instructional delivery? How can distance learning instruction be enhanced and be more interactive? To what extent should institutions deploy and use asynchronous or synchronous technologies? What will enhanced

remote electronic access cost the students and the institutions? How will faculty participate, have access to the various technologies, and be professionally developed to function in this new environment?

As a result, the debate has quickly moved beyond distance learning and onto a set of broader issues related to the role and meaning of higher education in a learning society that is rapidly entering the information age, a society wherein the majority of higher education students will be at least 25 years old and where lifelong learning will be not only ubiquitous but also a prerequisite to success. The core of the debate revolves around issues of support services (learner and faculty), technology options, enhancement of learning via electronic interaction or active learning strategies, equity of access, time-to-degree, productivity gains, cost efficiencies, and institutional transformation. In this respect, distance learning is not only the catalyst for change, it is the model for transformation as it already embodies the new core values that the rest of higher education must still adopt.

A New Focus: From Brick-and-Mortar to Virtual Campus - The virtual campus is the most recent metaphor for institutional change and the latest embodiment in the transformation process of post-secondary education. The virtual campus is more than just a distance learning program or initiative. For the 170 colleges and universities in the Going the Distance project, the virtual campus is an attractive resource which enables the delivery and support of degree programs.

A number of Going the Distance institutions have already implemented hybrid tele-learning programs where either the Internet, bulletin board systems (BBS), or groupware networks have been successfully integrated with existing tele-course delivery modes. Around the

country, colleges and universities are also using the Internet to offer an increasing number of online courses that rely on "listservs" and the vast capabilities of the World Wide Web.

The virtual campus delivers the college campus to the students through telephone systems, computers, and the vast capabilities of the Internet and commercial online services. The students can communicate with peers and professors from the workplace, at home on laptop computers, or from anywhere in the world. Support materials include books, tapes, computers, CD-ROM'S, videos, graphics and telephones. Every service of a traditional campus can be provided through the virtual campus, including financial aid, counseling and group discussion. Students can pose questions whenever it is convenient for them to do their academic studies, and receive answers that are written, unique and conform to their personal needs. Access to information is never restricted to the traditional work week's hours of business or to a difference in time zones, and people who are homebound or disabled have increased educational opportunities. Students also benefit from the individualization they receive from one-on-one communications with instructors and peers.

CONCLUSION

In summary, learning in the 21st century will be personalized, convenient learning made possible by universal access to the virtual campus, a flexible setting that offers accessibility to an array of innovative educational services, experiences, and information that far exceeds those of the traditional campus. In an age when both information networks and economies are being globalized, we should not forget that the virtual campus will also be a "global campus."

Initially, tele-education may be an alternative to more conventional forms of learning, but

over time, tele-education will be a necessity. The imperative referenced earlier will eventually impose radical changes on higher education. To facilitate the change process and to accommodate its transformation, higher education would do well to model itself in the image of the evolving distance learning organizations, where the concept of distance learning emphasizes quality education, that is inclusive, available, attainable, and learner-centered. Resistance to change or appeals to past successes can only accelerate the fate that befell carrier pigeons, elevator operators, telephone operators and, more recently bank tellers. Higher education must rethink it values in the face of new imperatives and a new balance must be established between continuity and change. In an increasingly competitive world, failure to encourage fundamental change and a concomitant reluctance to take risks is the greatest risk of all.

REFERENCES

Aslanian, Carol B.(1991). "The Changing Face of American Campuses." *USA Today, The Magazine of The American Scene*, pp. 57-59.

Aslanian, Carol B. (1994). "The Adult Student" Workshop Series presented by the Office of Adult Learning Services, The College Board, New York.

Bureau of Labor Statistics (1994). Report cited by Associated Press. Washington, D.C.: U.S. Department of Labor

General Accounting Office (1996). Report cited by Associated Press, *Florida Today*, August 26, 1996. Washington, DC: General Accounting Office, U.S. Congress

.

Florida Post-secondary Education Planning Commission 1995. *Statewide Telecommunications Task Force: A Report and Recommendations. Tallahassee,* Tallahassee: Florida Post-secondary Education Planning Commission.

Florida State University System: Distance Learning Task Force 1994-95. Unpublished report presented at Task Force Subcommittee Meeting, Orlando, Florida

International Data Corporation (IDC) (1995). Report cited by Associated Press. Framingham, Massachusetts: International Data Corporation.

Tele-Education Alternative or Necessity?

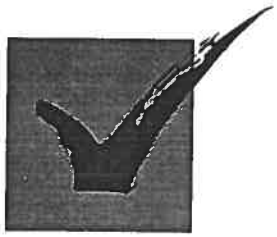
Committee I
ICUS XXI, 1997
Washington, DC

Panel Objectives

- This panel reflects on the impact of four *new imperatives*, new alliances, and explores the transformation power of distance learning and information technologies on higher education culture

The New Imperatives

- Demographic Changes and Enrollment Shifts
- New Wave of Technology
- Trends in Globalization
- Pairing Education and Economic Success



Panel Goal

- This panel promotes new thinking about new possibilities for our evolving learning society and invites us to consider inter-institutional collaboration and the potential for a pervasive global learning network for education and research.

PBS - *GOING THE DISTANCE*

- PBS national initiative to facilitate the development and the delivery of degree programs at-a-distance.
- PBS *Going the Distance* URL:

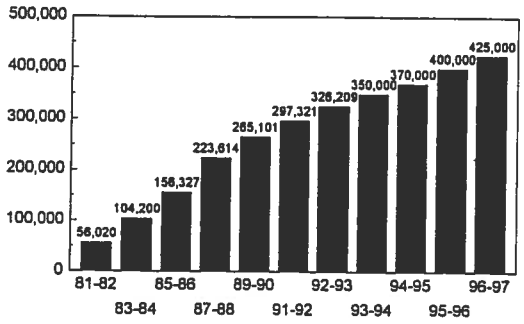
<www.pbs.org/learn/als/gtd>

Public Broadcasting Service

An initiative that builds on long-term relationships

- In the last 16 years, PBS has facilitated the enrollment of 4.3 million students.
- In 1997, PBS nationally enrolled over 400,000 students .
- The telecourse portfolio distributed through PBS provides sufficient courses to offer an AA degree exclusively through TV.

PBS Adult Learning Service - Telecourse Enrollment Growth



GOING THE DISTANCE

- The project was launched in August, 1994, in 20 states with the participation of 60 colleges and universities.
- In 1995, Phase 2 added 49 colleges and expanded the reach of the project to a total of 27 states.
- In 1996, Phase 3 added another 36 colleges and expanded the reach to 34 states.
- In 1997, Phase 4 brought the total of states to 37 with a total of 171 participating institutions. By the year 2000, the project targets a presence in all 50

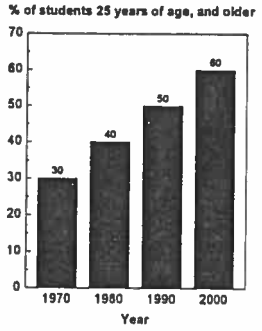
ENROLLMENT SHIFTS

Higher Education Trends

- The National Center for Educational Statistics (NCES) notes the following:
- Only about 3 million students attend full-time in residence, and are less than 22 years of age.
- Today, there are more than 14 million college students.

Adults going to college in larger numbers

- Adults -- typically defined as those persons 25 years of age and older -- are going to college in larger numbers than ever before.
- Source: The College Board



Who are the distance learners?

- Predominantly female (over 66 percent).
- The majority are married with at least one dependent; and they are overwhelmingly (80 percent) employed, with over half working full-time.
- The majority of telecourse students fall in the 25-30 age range category; and only 23 percent of students fall into the 18-22 age category.
- 60 percent of telecourse students live within a half-hour of the campus; only 7 percent live more than an hour away.

NCES - 1997 Distance Learning National Survey: URL

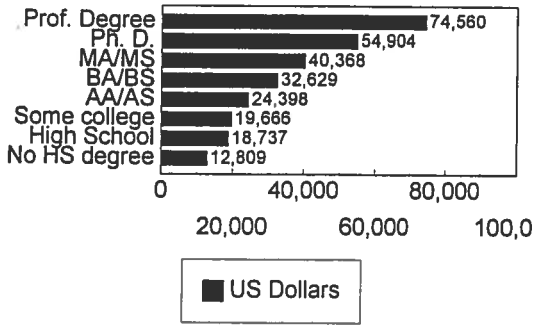
- The NC ES conducted a national survey of distance learning in higher education and has published a report of the findings. The report can be accessed at the following URL:

<www.NCES.ed.gov/>

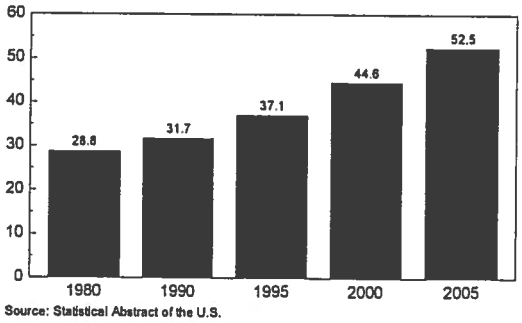
Go to menu and recent reports. The report was released in October, 1997.

EDUCATION & ECONOMIC SUCCESS

Average yearly earnings by level of education, 1992 (U.S. Census)

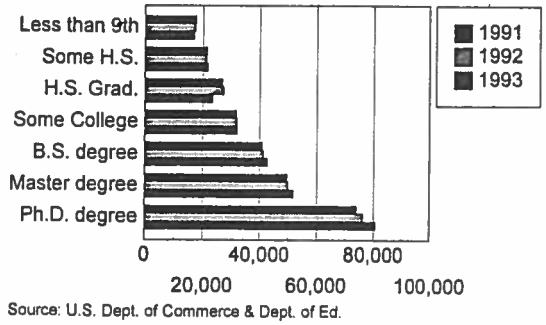


Older Workers (45-64 years old) Projections (in millions)



Source: Statistical Abstract of the U.S.

Link between Income & Education for Men, 1991-93

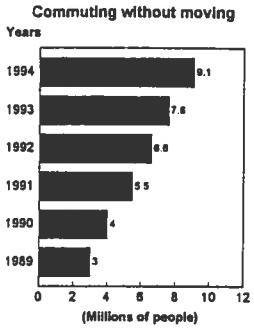


Source: U.S. Dept. of Commerce & Dept. of Ed.

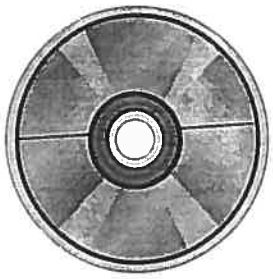
TRENDS IN GLOBLIZATION

Telecommuting to work

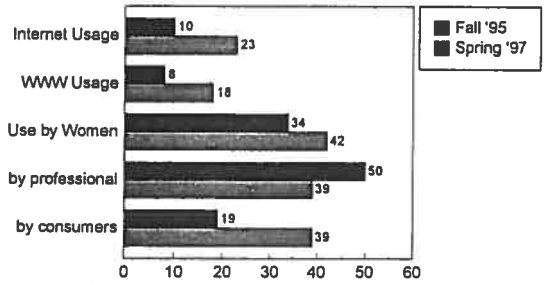
- Number of employees who telecommute -- using a computer or phone technology to work from home -- at least part of their business day:
- 25 million by the year 2000
- LINK Resources Corp.



WAVE OF TECHNOLOGY



Growth of "Net" in Percentage



Source: Washington Post, March 13, 1997
based on study by Nielsen Media Research

~~Brevard Community College's~~ URL to the "teleWEB" demo for "French in Action"

- <www.brevard.cc.fl.us/courses/courses.cgi?course=LAN-1000-40Z>

"*Internet Literacy*" A PBS teleWEB course for fall 1998

- URL for "*Internet Literacy*" at the University of Delaware:

<serf.udel.edu>

Contact: Fred Hofstetter

THANK YOU

- Jacques H. Dubois
- Project Director
  PBS Going the Distance

  Public Broadcasting Service

  (407) 783-0536 tel
  (407) 784-3384 fax

<Jacques-Dubois@worldnet.att.net>