



The Landscape of Information Technology in Higher Education in Brazil and Latin America

By Fredric M. Litto

The *EDUCAUSE Review* reader, perhaps unfamiliar with South American geography, history, and culture, may find it strange that this article title makes a distinction between Brazil and other countries on this continent of the Southern Hemisphere. But the fact is that Brazilians, whose national territory covers almost half of the continent and whose population of 180 million inhabitants represents about half of the region's population, do not consider themselves to be Latin Americans. Not only does the Portuguese language separate Brazil from its Spanish-speaking neighbors (and from those few countries where French, Dutch, and English are the principal languages), but so also do the Amazon Forest and the Andes Mountains. More important, during the last five hundred years, Brazil has turned its back to its neighbors and has looked to Europe for most of its cultural, scientific, economic, and legal models, only more recently following influences from North America as well in these areas. It would be a mistake, however, to assume that Brazil is in any way a carbon copy of Europe or North America. In the use of information technology, for example, the country sets its own standards. Ninety-eight percent of income tax declarations in Brazil are filed through the Internet, and two-thirds of the population in this still-developing country possess prepaid cellular telephones. The exchange of information among Brazilian and other Latin American institutions of higher learning is, in general, highly sporadic, with the results rarely disseminated widely.

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In 2003, investigators at the “School of the Future,” an interdisciplinary research laboratory of the University of São Paulo (USP), Brazil’s largest public research-oriented university, became aware of the Campus Computing Project, an annual survey of how colleges and universities in the United States use information technology. Begun in 1990 and directed by Kenneth C. Green, visiting scholar at the Claremont Graduate University, the Campus Computing Project (<http://www.campuscomputing.net/>) offers an important view of hardware, software, and policy choices and plans made by those responsible for information technology in the institutions responding to the annual questionnaire.

Green kindly permitted the USP team to model its own questionnaire after his and to use his data for comparative purposes. Assuming that those in charge of information technology would be able to respond to questions through the Web, and as a measure of reducing mailing and digitizing costs, the USP team used online communication in 2004 and 2005, the first two years of the study, both to deliver the invitation-to-participate to institutions and to receive the responses on the study site.¹ In 2004, the scope was limited to Brazil. Thanks to sponsorship by Sun-Gard Higher Education, Adobe, Macromedia, Intel, and Microsoft, in 2005 it was enlarged to include other countries of the region: all countries from Mexico to the southernmost tip of South America (the Caribbean region was left for inclusion in a forthcoming iteration).

The following data is based on a selection of the responses to the more than sixty questions asked in the 2005 pilot project. With only a limited number of respondents (although we have great expectations for the future), the data presentation below avoids a comparison based on numerical values and instead uses qualitative categories that indicate tendencies. These categories range from Very Negative (0–20%), Negative (21–40%), and Medium (41–60%) to Positive (61–80%) and Very Positive (81–100%) in the three academic communities studied (Br = Brazil; LA = Latin America; USA = United States). The U.S. data is extracted from *Campus Computing Report 2005*.²



Policy

1. What is the degree of importance that your institution gives to concerns, for the next two to three years, regarding network security?

Br: Very Positive

LA: Very Positive

USA: Very Positive

2. Does your institution have in place a strategic plan for network security?

Br: Medium

LA: Positive

USA: Positive

3. Is your institution preparing a strategic plan for network security?

Br: Negative

LA: Negative

USA: Negative

4. Does your institution already have in place a strategic plan for IT disaster recovery?

Br: Medium

LA: Medium

USA: Medium

5. Is your institution preparing a strategic plan for IT disaster recovery?

Br: Negative

LA: Negative

USA: Negative

6. Are academic and administrative information technology managed together in the same unit?

Br: Negative

LA: Very Negative

USA: Positive

7. Has there been a reorganization of IT management on your campus in the last two years?

Br: Medium

LA: Positive

USA: Negative

8. Does your institution have a CIO or CTO?

Br: Negative

LA: Medium

USA: Very Positive

9. Does your institution have a formal policy for distance learning?

Br: Negative

LA: Very Positive

USA: Negative

10. Does your institution recommend or support the use of Linux?

Br: Positive

LA: Medium

USA: Positive

11. Does your institution recommend the use of PDAs or portable computers in specific courses or academic programs?

Br: Very Negative

LA: Negative

USA: Very Negative

12. Does your institution have a formal program to evaluate the impact of information technology on the results of teaching and learning?

Br: Very Negative

LA: Negative

USA: Negative

13. Does your institution charge students for access to digital online content?

Br: Very Negative

LA: Very Negative

USA: Very Negative

14. Does your institution have a strategic plan for electronic commerce?

Br: Very Negative

LA: Very Negative

USA: Negative

15. Has your institution established a single product standard for desktop/notebook operating systems?

Br: Negative

LA: Negative

USA: Negative

16. Does your institution have a policy for dealing with “electronic garbage”?

Br: Very Positive

LA: Very Positive

USA: Very Positive

17. Do you believe that open-source software represents an important and viable alternative for ERP applications on your campus?

Br: Negative

LA: Negative

USA: Negative

18. Do you believe that open-source software will have an increasingly important role in the IT strategy of your campus?

Br: Negative

LA: Negative

USA: Medium

Infrastructure

1. Does your campus offer dial-up online services to students and faculty?

Br: Without a fee: for students—Very Negative; for faculty—Very Negative

For a fee: for students—Very Negative; for faculty—Very Negative

LA: Without a fee: for students—Negative; for faculty—Medium
For a fee: for students—Very Negative; for faculty: Very Negative

USA: Without a fee: for students—Negative; for faculty—Medium
For a fee: for students—Very Negative; for faculty—Very Negative

2. Does your institution offer wireless support to faculty and students in local areas on the campus?

Br: Negative

LA: Negative

USA: Very Positive

3. Does your institution offer wireless support to faculty and students on the entire campus?

Br: Negative

LA: Negative

USA: Negative

4. Are there fiber-optic connections between the buildings on your campus?

Br: Medium

LA: Positive

USA: Information not available

5. Are there copper-wire connections within the buildings on your campus?

Br: Medium

LA: Medium

USA: Information not available

Portals

1. Does your campus portal contain a catalog of courses offered by your institution?

Br: Very Positive

LA: Positive

USA: Very Positive

2. Does your campus portal allow the use of a campus-based credit card?

Br: Very Negative

LA: Very Negative

USA: Negative

3. Does your campus portal include the possibility of student evaluation of courses?

Br: Very Negative

LA: Very Negative

USA: Positive

Only one-third of Brazilian institutions reported having a CIO or CTO, in contrast with the U.S. scenario and its consolidated, unified structure of academic and administrative computing.

4. Does your campus portal permit enrollment for the institutional entrance exam?

Br: Positive

LA: Medium

USA: Very Positive

Investments

1. Were there reductions in the IT budget in your institution in 2005?

Br: Very Negative

LA: Very Negative

USA: Very Negative

2. Is your institution using information technology in an attempt to reduce costs?

Br: Negative

LA: Medium

USA: Medium

3. Does your institution recycle older IT equipment to other institutional units?

Br: Medium

LA: Negative

USA: Positive

4. What is the average time a new computer is used before recycling?

Br: 3.8 years for students, 3.7 years for faculty

LA: 3.4 years for all

USA: 3.0 years for students;

4 years for faculty; 4 years for administration

Similarities and Differences

As this data presentation shows, in the *policy* area, a principal concern of higher education institutions in Brazil, elsewhere in Latin America, and the United States is definitely network security, now and for the coming years (questions #1, #2). Regarding open source, all institutions' strong recommendation that students use open-source programs, especially for research, stands in contrast to the institutions' hesitancy about the

use of open source for administrative purposes or for the key ERP applications on campuses (questions #10, 17, 18). Half of the Brazilian institutions of higher education reorganized their administrative computing units in the last two years, revealing a strong tendency in the region (question #7). However, only one-third of Brazilian institutions reported having a CIO or CTO, in contrast with the U.S. scenario and its consolidated, unified structure of academic and administrative computing (questions #6, #8).

With regard to *infrastructure*, Brazil reveals an imbalance in relation to the rest of Latin America and to the United States, with a reduced furnishing of off-campus network access to both students and faculty (question #1). One of the greatest differences between Brazil/Latin America and the United States is that of minimum prevalence of wireless services on campus, although institutions reported that plans for such implementation increased from 9 percent in 2004 to 43 percent in 2005—plans that will be verified in the next edition of this survey.

More than half of the Brazilian and other Latin American campus *portals* are homegrown, offering fewer services to users than U.S. portals, which are more varied in offerings, most probably as a result of a longer tradition of service. Certainly another important distinction is the great number of U.S. campus portals that offer tutorials and training in information technology, as well as resources supporting information technology for users, a rare characteristic in Brazilian and other Latin American campus portals (as shown in answers to questions included in the larger study). There is also little use of the campus portal in Brazil and elsewhere in Latin America for online student evaluation of courses and programs, a common use of U.S. portals (question #3).

In the area of *investments*, the United States, Brazil, and the rest of Latin America all reported no significant reductions in spending for information technology in 2005 (question #1). Nor did they make any exceptional efforts to use information technology to reduce costs (question



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#2). These responses may indicate that the central institutional administration considers information technology to be of continuing overall strategic importance.

Considering the socioeconomic distinctions between the countries of the United States and those of Latin America, it is possible to conclude that although there are measurable qualitative and quantitative differences in the institutional use of information technology in Brazil and elsewhere in Latin America, such differences do not appear to restrict these colleges and universities from successfully carrying out their missions of capacity-building, knowledge discovery, and community service. Furthermore, the essential similarity of their technological platforms permits collaborative efforts among their students, faculty, administrators, and the institutions

themselves. Two notable examples of inter-institutional collaboration come to mind: Cederj and CVA-RICESU. Cederj, the Center for Distance Learning of the State of Rio de Janeiro (<http://www.cederj.edu.br>), is a consortium of six public universities effectively collaborating to extend full university diploma courses to residents of underserved communities far from large urban centers. CVA-RICESU, the Network of Catholic Institutions of Higher Education (<http://www.ricesu.com.br>), is a consortium of sixteen private universities achieving exceptional synergy through the coordinated offerings of online courses from the participating institutions.

All in all, the similarities in operations and policies appear to be greater than the differences among the institutions responding to the questionnaires from the three regions studied. For now, at least,

it will be possible for those responsible for information technology in the higher education institutions of Latin America to have comparative data in hand as they make future plans and implement policies, upgrade their infrastructure, develop their portals, work to obtain investment resources, and take their institutions to improved levels of academic performance. *e*

Notes

1. The 2004 and 2005 reports can be found at the following Web site: <<http://www.campuscomputing.futuro.usp.br>>. The hard-copy version of the 2004 report was published as Fredric M. Litto, *Campus Computing Report.Br 2004: Computing and Information Technology in Brazilian Higher Education* (São Paulo: Altana, 2005). The other members of the Brazilian team in 2005 were Daisy Grisolia, Otavio Grisolia, Gustavo Morais, and Judith Zuquim.
2. Kenneth C. Green, *Campus Computing Report 2005: The 16th National Survey of Computing and Information Technology in American Higher Education* (Encino, Calif.: Campus Computing, 2006).