Internet, Development and Education
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An Exploratory Study of Internet Usage at Higher Education Institutions in Asia, Africa and Latin America
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Comparative Synthesis

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Introduction

The focus of this project is on the impact of ICTs on the higher educational sector, particularly, the impact of the Internet. In universities and other institutions around the world, ICTs are currently used for research, for networking and for teaching and learning purposes. The issue of relevant content and access to Internet is a crucial one, and central in this project.

Worldwide, the higher education sector is undergoing significant changes. These changes are characterised by processes of expansion and differentiation. "Problems of quality and lack of resources are compounded by the new realities faced by higher education, the first of which is expansion, as higher education institutions battle to cope with ever-increasing student numbers. (…) Not only have higher education systems expanded worldwide, the nature of the institutions within these systems has also been shifting, through a process of differentiation" (World Bank 2000: 26, 28).

ICT plays an important role in these processes. It is expected to further internationalise higher education. "ICT will expand the possibilities for cooperation between institutions of higher education, and give students and staff members who are not able to travel extensively an opportunity to benefit from all that the partner institutions have to offer" (Wende 1998: 5).

Relatively little is known about the impact of ICT on the higher education sector of the (so-called) developing world. Does ICT enhance differentiation, expansion, co-operation and competition for the higher education sector in Africa, Asia and Latin America? This report aims to make a first empirical investigation. The research was therefore set to answer the following question:

- How does the higher education sector in Africa, Asia and Latin America use ICT, in particular the Internet?

The Latin American study focuses on Brazil and Chile, the African study –facilitated by UNU/INTECH– on Kenya and Nigeria, and the Asian study concentrates upon China and Indonesia.

Detailed information can be found in the three reports that are available on each specific continent in our Infonomics website (at www.infonomics.nl/globalequality/reports.htm). The present report will focus on the synthesis of a comparative dimension and conclude with listing the main issues that, following the quantitative findings of this study, require further research.

While insisting on cross-cultural comparisons, this project seeks to resist essentializing cultural differences; instead, both the general and the particular will be accounted for. The study is exploratory in that it aims to present the findings of the empirical research.

Method and Sample

To ensure optimal comparability between the selected countries in this project, a partly similar quantitative survey has been administered among respondents in each country. The sample is not selected in strict correspondence with official statistics (regarding gender, academic discipline, position, and university). However, respondents are selected across the different academic disciplines, from different positions, from both sexes and among different universities and research institutes to ensure coverage of all these relevant demographic and academic indicators.

In addition or parallel to the collection of quantitative data, a more in-depth understanding of the research topics is gained through interviews. Throughout the reports, the quantitative and qualitative data have been used simultaneously. Computer software has been used (SPSS) to analyse the quantitative data.

The sample size differs per country: it is 125 for Brazil, 75 for Chile, 171 for Nigeria, 53 for Kenya, 100 for China and 110 for Indonesia. The gender distribution is not entirely equal, in particular in the case of Indonesia and Nigeria – where there is a clear male bias in the sample, a bias when compared to the total population, not to the academic population. With the exception of Nigeria, most respondents from the survey are working in the humanities (including the social sciences).

Connectivity and Access

According to statistics on "Internet use worldwide" 2001, among the world total of 513 million users, there are marked regional concentrations:

Table 3: Internet use world wide (Million – August 2001) (Source: nua.ie & prb.org)[1]

	Million of users	**Percentage of users**
World Total	513	8.5
Canada & US	181	57.3
Europe	155	21.3
Latin America	25	4.8
Asia / Pacific / Middle East	149	4.0
Africa	4	0.5

In the countries under study, there are vast differences in connectivity. In general, the African countries are the least connected, followed by Asian countries. Latin America is the best connected in this study.

When we look at the location of access, there is a difference between the countries in terms of public and private access. In China as well as in the Latin American countries many of the respondents have a home computer they can use to access the Internet, whereas in the other countries, access occurs mainly though computers at the

[1] Since NUA does not provide percentages over the distinguished regions, population statistics are used (www.prb.org) to calculate these.

office. In terms of time spent using the computer each day, Latin America ranks highest with approximately 290 minutes a day, while both the Asian and African scholars use the computer for 200 minutes a day. The Internet café is in general not a favourite place for academics, with the exception of Indonesia where more than half of the respondents access the Internet also at the Internet café. This is partly related to the rather poor connectivity at universities in Indonesia. Scholars often share a computer with a slow Internet connection among several colleagues. Internet cafés offer high-speed connections for relatively low prices in a very private setting – factors that make it an attractive alternative.

Use of Email and the Internet

Concerning the frequency of Internet use, from the available data it becomes evident that Latin America seems to use it most intensively. While an Indonesian academic sends only 6.7 Emails a week, his/her Brazilian colleague sends 31 Emails a week. Better connectivity for state universities through their academic network, access to Internet at home, the preference to communicate with other academics, and a number of government regulatory measures to implement "universal access" through telephone connectivity might help explain these differences. Therefore, in terms of Email use, Latin America again ranks the highest.

What becomes clear from the figures available on Email and Internet usage is that, first, all academics use Email mainly for private purposes. Second, there are vast differences among the continents when it comes to academic networking. In particular, Latin America ranks higher when communicating with other scholars, networking and sharing research results. In the middle we find Asia, while Africa seems to communicate the least with peers. Email for teaching purposes is not popular among our respondents, with the exception of Chile. Likewise, the use of Email to conduct joint research projects has a low preference in all countries studied.

On the professional uses of the Internet, the continental differences are less obvious. The majority of academics use the Internet for research purposes, that is, to find primary and secondary information, such as data for research and online academic articles. Only a few academics use the Internet for teaching.

To reiterate, in the three continents under study, Email stands out as a medium for the academics to communicate predominantly for private purposes and second with colleagues, whereas the Internet is given preference to find secondary and primary information. It is of particular interest that neither Email nor the Internet is popular for teaching purposes.

Constraints

Even though the ranking of constraints is rather similar among the study countries, the importance attached to these shows significant differences.

The list of constraints points at four main obstacles when dealing with Internet use:

The first one is *infrastructure*, indicated as connectivity, access, and services. The impact is reflected in speed, power supply, subscription fee and telephone costs. Although these constraints rank high in all countries under study, they rank higher in the African countries. In the latter, key infrastructure issues, such as telephone access and power supply, rank high, whereas in both Asia and Latin America they rank low.

The second one is assessing the *quality* of information. This barrier is particularly problematic in Latin America and China, and less troublesome in Africa and Indonesia. This concerns an important difficulty regarding knowledge since it refers to not knowing what to look for and the uncertainty about whether the information found in the Internet is reliable or not.

The third is *local content*, especially in Africa. The limited amount of local sites is considered highly problematic.

The fourth one is *time*, given the heavy workload of academics in the continents studied, in particular due to the increasing burden on teaching; using the Internet is considered too time consuming by many.

Visions

Most respondents are fully convinced that the Internet will play a progressively more important role in the future. Despite the common belief in both popular and academic discourses that the “Digital Divide” --particularly through the Internet-- may be widening the information gap in society, most respondents do not tend to believe so. The respondents may have less reason to worry probably because they are part of their nation's digital elite. This noteworthy contrast is an area for further research.

With the exception of Chile, most respondents from the countries surveyed are not certain, or express a rather average belief that the Internet has increased the quality of their work, and that it has been positive for their career. Equally non-committal was the agreement or disagreement with the statement that the Internet enhances the learning process of students. Given the overall constraints in our findings, this average opinion might be due to the fact that the respondents have not had the opportunity yet to ascertain whether the Internet is indeed a tool for teaching. Such “average” interpretations of the potentials of the Internet to improve teaching and research are of course closely linked to the constraints as mentioned earlier.

Conclusions

Having briefly sketched some differences and similarities in terms of connectivity, use, constraints and visions between the countries under study, different additional issues emerge that we believe deserve further study in the domain of ICT and education:

>> Varieties of access

Whereas standard figures of connectivity often confine themselves to a clear-cut picture of the numbers of people that are online, our study shows that reality is much more complex than a simple presentation of who is online and who is not. For instance, the places where people access the Internet vary widely, and these differences require further qualitative study. Particularly noticeable is the difference between public and private access. Respondents use both public and private domains of access – and it remains to be researched whether the uses are different. This distinction needs to be analysed and included in studies on connectivity, since they define the potential and actual uses of the Internet in a more differentiated way. Moreover, the findings of "double access" in the report on Latin America also deserve further investigation. If these variants of access are taken into account in future Internet surveys, we may obtain more accurate figures and a sharper profile of Internet uses and users.

>> Varieties of use

Customary figures say little about either uses or users, in particular at different localities. Further in-depth ethnographies of Internet uses are required in order to grasp the subtle cultural differences. Even when scholars in Chile and Indonesia access the same database on the web, the objectives, interpretations and uses may differ significantly.

>> Comparative studies

Our study also reveals the need for more in-depth comparative studies, beyond online/offline parameters. Studies, for instance, of teachers and students, the latter being the most fervent users of ICTs. Also, not only the tertiary education sector, but also secondary and primary education levels --in countries where ICTs are used by all these groups-- need to be included in further studies on ICT and education.

>> Gender

What is quite remarkable from this study is that there are no significant differences in Internet use between male and female respondents. This contradicts other studies that show how men make more and “better” use of the Internet. Our conjecture is: since our respondents are academics working in tertiary education institutions, such occupational position may have levelled out gender differences in Internet usage.

>> Teaching

As stated earlier in this report, the function of the Internet for teaching is still not evident for our respondents The reasons are complex: would they be technological, geographical, cultural, generational or a matter of time? More studies are required.

>> Generation
Only in Africa age is an important distinguishing factor. Younger respondents show a tendency to use the Internet with more frequency. It is remarkable that these correlations did not occur in either Asia or Latin America.

>> Digital Divides
The popularity of the term the Digital Divide lies in its simplicity, and hence also points at its main weakness: it divides the world too bluntly into the "haves" and the "have-nots." What this study shows is that the divides are as apparent within the developing as in the developed world. Even within the same country there are vast differences, often related to the urban-rural division with a host of socio-economic factors such as gender and disability. All these issues need to be related to the issue of access simultaneously if one aims at making sense of the Digital Divides.

>> “Relevance" and local content correlation.
In countries where the production and use of contents is limited, and the population has limited access to content because of insufficient infrastructure, "relevance" is often described as what is needed, and what responds to the standards of quality of the given region. However, from the point of academic research, and in view of the finding that most academics are interested in the Internet to locate academic articles, more in-depth studies are certainly needed to clarify the issues of lack of local content, lack of access to online publications, and the different forms to define and measure "relevance" among others.

References

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