



Importance of global business information: perceptions of students in Hungary, Romania, South Africa and the United States

M.L. Hart

Department of Information Systems
University of Cape Town
South Africa
mhart@commerce.uct.ac.za

L.A. Pook

Department of Computer Information Systems
Metropolitan State College
Denver
Colorado, USA
pookl@mscd.edu

G. Jenei

Department of Public Administration
Corvinus University of Budapest
Hungary
Gyorgy.jenei@uni-corvinus.hu

M. Jennings

Department of Computer Information Systems
Metropolitan State College
Denver
Colorado, USA
jenninmo@mscd.edu

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1 Introduction

Human capital is one of the critical factors for measuring the potential ability of a country to deal with the implications of globalization. This indicator is usually measured in the form of sheer numbers of workers and their level of education. While this provides useful and important information, it does not include attitudinal variables that would indicate the readiness of the workforce to embrace the changes necessary to participate in a global economy. When research on perceptions or attitudes is carried out, it is often focused on the current workforce (Sunassee and Sewry 2003). It is suggested that the perceptions and attitudes of students, particularly relating to information use, information system use and information needs, would also be a good indicator of future ability to cope with globalization.

Globalization can be described as the increasing integration of world markets for goods, services and capital; it results in the growing integration of economies and societies around the world (World Bank 2006). Actions toward globalization are important for emerging countries. The positive outcome for any country involved in a global economy is larger market share and greater opportunities for trade. For nations that are part of the world economy, per capita income has grown, while those that are not have seen little increase (Becker 2003). Not everyone agrees, however, that globalization is a good thing. Negative aspects of a global economy include the financial dependence countries have on each other, as illustrated by the global financial crisis in Asia in 1997 and Russia in 1998 (Horsley 1999), concerns about the loss of local culture, job losses, unfair trade competition and environmental damage (Bernstein and Malkin 2000). These issues have caused a backlash regarding globalization (Hari 2002).

Putting in place policies such as infrastructure development and business incentives that promote the use of technologies and globalization will only be effective if decision makers avail themselves of relevant information. While many developed countries have embraced globalization and reaped its benefits (Chinn and Fairlie 2004), it is not clear how countries that were formerly under oppressive regimes understand the benefits of information access. Universities often play a part in the transformation of authoritarian regimes. 'Higher education is one of the key vehicles that transports new ideas into the minds of people, be it universal, globalized and local, or culture specific' (Kozminski 2002:366). As observed by the American Library Association (2000), because of 'the escalating complexity of [the business] environment, individuals are faced with diverse, abundant information choices – in their academic studies, in the workplace, and in their personal lives.' Here, higher education has played a role in bringing about information literacy. Furthermore, 'the sheer abundance of information will not in itself create a more informed citizenry without a complementary cluster of abilities necessary to use information effectively' (American Library Association 2000). Ability to solve problems and use information effectively are considered to be essential elements of information literacy.

Information literacy, technology and the supporting infrastructure are factors in becoming part of a global economy. The emergence of the information highway can be likened to the transcontinental railroad, which opened up a whole new world (Surmacz 2001). This article is a report on a study undertaken in four countries to determine student attitudes to the use of information and information systems, and their perceptions of the importance of international business information.

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2 Research methodology

Data were collected from students in Hungary, Romania, South Africa (SA) and the United States (US) through a questionnaire survey. While national history has favoured the US, the other three countries' national economic and political developments were constrained for over 40 years, roughly since the end of the Second World War. Would students from a highly developed country such as the US be more open to the use of information at a global level? How have universities and their students in Hungary, Romania and South Africa utilized their new-found freedoms over the past ten years to prepare their graduates for a globalized market economy, in terms of showing them the need for global business information for decision making? Questions such as these generated the following research hypotheses:

2.1 Hypotheses addressed

H1: There is no difference between the four countries' university students on their perceptions of the breadth of information needed in their future employment.

H2: There is no difference between the perceptions of the four countries' university students on the capabilities of their future organizations' information systems to provide them with an appropriate breadth of business information.

H3: There is no difference between the four countries' university students on their perceptions of the breadth of information that organizational information systems should provide.

H4: There is no difference in these perceptions between genders.

H5: There is no difference in these perceptions between academic levels of students.

H6: There is no difference in these perceptions between language groups.

2.2 Questionnaire

A questionnaire consisting of 28 questions was distributed to university students in the four countries, over a two-year period. Where the national language was other than English, the questionnaire was translated into the local language and retranslated into English for verification. In South Africa, which has eleven official languages, all students at UCT spoke English at least and the questionnaire was piloted and administered in this language.

Hypothesis 1 (**H1**) was tested using question 5 (Q5):

Should the information that you will use in your future employment describe

1 Your business unit only?

2 Your business unit as well as the entire organization where you work?

3 Your business unit, the entire organization where you work, as well as national markets and industry?

4 Your business unit, the entire organization where you work, national markets and industry, as well as international markets and industries?

Hypothesis 2 (**H2**) was examined using question 6 (Q6):

Should the information system that you will use at work provide you with information describing

1 Your business unit only?

2 Your business unit as well as the entire organization where you work?

3 Your business unit, the entire organization where you work, as well as national markets and industry?

4 Your business unit, the entire organization where you work, national markets and industry, as well as international markets and industries?

Hypothesis 3 (**H3**) was tested using question 7 (Q7):

In general, should organizational information systems provide employees with information describing

1 Their business unit only?

2 Their business unit as well as the entire organization where they work?

3 Their business unit, the entire organization where they work, and national markets and industry related to their organization?

4 Their business unit, the entire organization where they work, national markets and industry related to their organization as well as international events and markets related to their organization?

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3 Four countries and their university samples

3.1 Romania

Romania has fought for freedom from oppression throughout its existence. The latest political milestone came in 1996, when former communists were removed from power after dominating the government after Ceausescu was overthrown in 1989. Romania had little to build upon after the atrocities of the Ceausescu regime. Though at first slow to implement reform after the communist regime, Romania is scheduled to become a member of the EU in 2007. It faces several hurdles in achieving this goal, for example government corruption (Romanian PM... 2005), serious gender bias and information management (Pook, Fustos and Marian 2003), and it is lacking information infrastructures (Pook and Szabo 2004) through which decision makers may access domestic and international business information. About 90% of the national population is Romanian and 6.6% Hungarian, though roughly a third of Transylvania is Hungarian.

The Romanian sample was drawn from two universities. The University of Petru Maior is a preeminent historic institution in Tirgu Mures (Marosvasarhely), a cosmopolitan city in the Transylvanian region of Romania. Most students there are Romanian, with a small minority being Hungarian. The Sapientia University, with nearly all students of Hungarian origin, is at Mercurea Ciuc (Csikszereda). Sapientia is a young university with the mission to offer high quality business and liberal arts education.

3.2 Hungary

Like Romania, Hungary has a long history of oppressive rule. Recent history has seen occupation by Germany (1944) and then the Soviet Union (1948–1989). In 1990 the first democratic elections since 1947 established the legal-institutional framework for market economy, pluralist democracy and the rule of law (Eszenyi 1999). The country rapidly rid itself of vestiges of Soviet-style planned economy and converted to a market economy. Hungary was admitted as a full member of the EU in 2004, yet it still faces problems of gender bias (Pook and Fustos 1999), the impact of gender bias on information usage (Pook, Fustos and Marian 2003) and issues of information infrastructure building prior to accession and post accession (Pook and Pence 2004; 2005).

The population of Hungary is nearly homogenous, being 92,3% Hungarian with about 1,9% Roma (CIA World Factbook 2006). The Hungarian sample was drawn partly from the Budapest University of Economics and Public Administration (today Corvinus University of Budapest, the capital city), and from the Eszterházy Károly Foiskola in the provincial city of Eger. Both universities are essentially all Hungarian. Under Communist rule, the Ministry of Education laid out curricula for universities, which ossified education without much opportunity for innovative local programmes. In 1990, the situation changed completely: universities regained their autonomy and largely updated their curricula. This is especially true of Corvinus University, which has recently been included among the top 25 European business schools in a survey by the London-based *Financial Times*.

3.3 South Africa (SA)

While citizens of Romania and Hungary were repressed by foreign powers, in South Africa the white minority subjugated the black majority. The tide turned in the late 1980s and early 1990s when Prime Minister De Klerk made sweeping changes regarding apartheid and Nelson Mandela became the first democratically elected president in April 1994. Economic problems remain from the apartheid era, particularly in the form of high unemployment and housing shortages, but the country is currently in a sustained period of growth, with very high levels of business optimism. While SA is working on expanding its global trade, South African CIOs suggest (Pook, Hart and Szabo 2004) that it has a long way to go.

The SA sample was drawn from students of the University of Cape Town (UCT), an institution with a historically earned high quality reputation fostered by graduates and faculty, some honoured as Nobel Prize winners. Through the years of apartheid UCT had mainly white students, but was able to accommodate a limited number of students of other races by finding gaps in the restrictive government rules. The demographics of UCT are now much closer to that of the South African population. The sample was drawn from students studying information systems (IS) and other business majors in the Commerce Faculty.

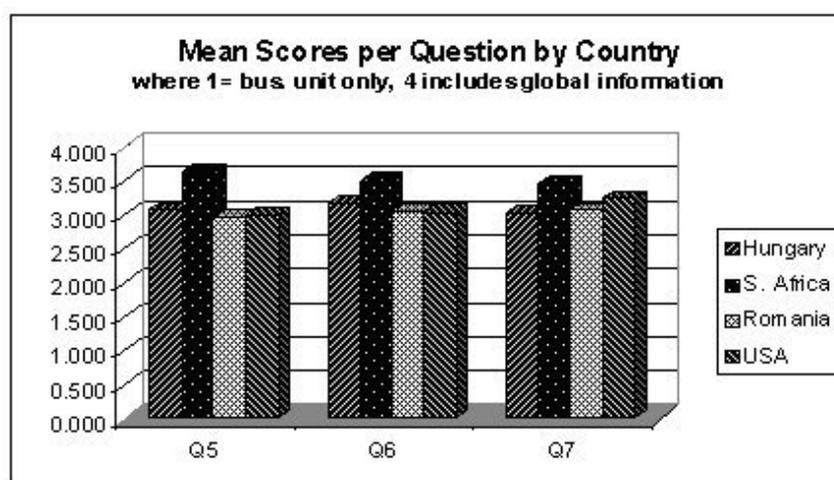
3.4 United States (US)

The US has seen little of what these three countries have experienced. It is a scientifically, technologically and economically advanced country that has invested billions of dollars in human capital, institutions and infrastructure. With 68,1% Internet penetration it ranks eighth in the world (Internet World Stats 2006). The Internet is often cited as the reason for economic growth in the US in the mid to late 90s (Chinn and Fairlie 2004; Clarke 2001). The relative availability and ease of access to information via a functioning national information infrastructure (NII) has contributed to this economic growth.

In the US the sample was drawn from students at Metropolitan State College of Denver (MSCD), the largest undergraduate institution in the state of Colorado and among the largest in the US. MSCD has open admission, a dedicated teaching and research-oriented faculty and is a relatively new institution serving mostly a working class clientele with high quality programmes. About 23% of the student body consists of minorities, slightly above the national average of 18%.

Questionnaires were administered to students by lecturers in their classes and were completed anonymously. Not all respondents recorded answers to all of the questions, but the following numbers of responses were usable: Hungary: 515; Romania: 368; SA: 651; and US: 526. Figure 1 shows each question's mean score per country, based on the responses (from 1 to 4) listed in Section 2.2. The larger the score, the more respondents tended to take a broad (international or global) view of information requirements.

Figure 1 Mean scores per question for each country



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4 Testing hypotheses H1 to H3

A one-way analysis of variance (ANOVA) was used to test for significant differences in scores of Questions 5, 6 and 7, and multiple comparisons were done to test for specific between-country differences. As a check, Kruskal-Wallis nonparametric tests were also carried out.

Hypothesis 1 – Question 5

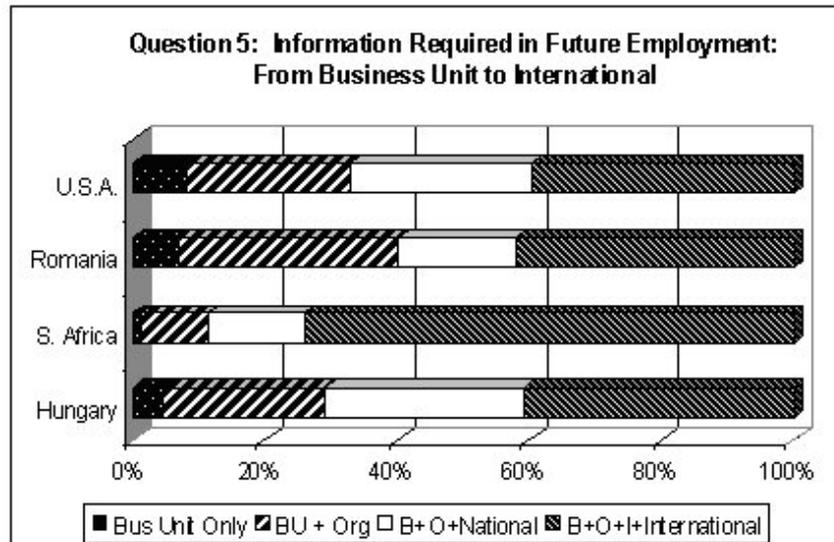
Table 1 summarizes ANOVA results by country for question 5. The F -value shows highly significant differences for this question and, to identify them, Bonferroni and Tamhane multiple comparison tests were calculated. These revealed significant differences at a level of $p < 0,001$ between South Africa and each of the three other countries. This is borne out strongly by the 95% confidence intervals in Table 1, showing that South African students tend to think more globally than the others in terms of information requirements. Differences between Hungary, Romania and the US were not significant.

Table 1 Q5 results compared by country from ANOVA test

| Country | Mean | Std.Err. | -95% | +95% | N |
|------------------|---------------|----------|-----------|-------|--------------|
| Hungary | 3,070 | 0,040 | 2,992 | 3,147 | 515 |
| S. Africa | 3,611 | 0,035 | 3,542 | 3,680 | 651 |
| Romania | 2,951 | 0,047 | 2,859 | 3,043 | 367 |
| USA | 2,987 | 0,039 | 2,910 | 3,063 | 526 |
| | $R^2 = 9,1\%$ | | $F=68,65$ | | $p < 0,0001$ |

A summary of the answers to Q5 by category is shown in Figure 2. This illustrates that the percentage of South African students advocating international information is nearly double that for the other three countries.

Figure 2 Breakdown of answers to question 5 by country



Hypothesis 2 – Question 6

In Table 2, the 95% confidence interval for South Africa is again well above those of the other countries. Multiple comparisons were also only significant (at $p < 0,001$) between South Africa and each of the three other countries.

Table 2 Q6 results compared by country from ANOVA test

| Country | Mean | Std.Err. | -95% | +95% | N |
|------------------|---------------|----------|-----------|-------|--------------|
| Hungary | 3,165 | 0,040 | 3,087 | 3,243 | 515 |
| S. Africa | 3,488 | 0,035 | 3,418 | 3,557 | 648 |
| Romania | 3,054 | 0,047 | 2,962 | 3,147 | 368 |
| USA | 3,034 | 0,039 | 2,957 | 3,112 | 524 |
| | $R^2 = 4,2\%$ | | $F=31,15$ | | $p < 0,0001$ |

Hypothesis 3 – Question 7

There was a slightly different pattern for this question. While South Africa's confidence interval was again distinctly above the other three, that of the US was clearly above those of Romania and Hungary. Multiple comparisons showed South African scores to be significantly higher ($p < 0,001$) than those of the US, which were themselves significantly higher than those of Hungary ($p < 0,001$) and Romania ($p = 0,029$).

Table 3 Q7 results compared by country from ANOVA test

| Country | Mean | Std.Err. | -95% | +95% | N |
|------------------|---------------|----------|-----------|-------|--------------|
| Hungary | 3,014 | 0,041 | 2,933 | 3,094 | 515 |
| S. Africa | 3,451 | 0,036 | 3,380 | 3,523 | 647 |
| Romania | 3,071 | 0,048 | 2,976 | 3,166 | 367 |
| USA | 3,249 | 0,041 | 3,169 | 3,329 | 522 |
| | $R^2 = 3,6\%$ | | $F=25,25$ | | $p < 0,0001$ |

Hypotheses H1, H2 and H3 are therefore all rejected, largely due to the South African scores.

The direction and magnitude of these differences suggest that South African students in general

perceive their future information needs to be significantly broader than students from each of the other three countries (encompassing international as well as national and internal organizational information). This applies to the information itself, the information systems that they expect to use on graduation and the information systems that they generally expect to be in organizations. Students from the US, while having lower global expectations than the South Africans in each case, do expect information systems in general to provide more globally focused information than those in Hungary or Romania.

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5 Testing hypotheses H4 to H6

It is now of interest to delve further into the country differences to assess whether these may be caused by demographic or other factors.

H4: Gender differences between the four countries

It is hypothesized that there are no differences between genders within each country, and also that South Africa, US, Romanian and Hungarian females view the use of information and information systems similarly in all four countries, as do the males. The nonparametric Mann-Whitney test (adjusted for ties) was used to test for male-female differences. Table 4 shows the results.

Table 4 Male and female mean scores by country, with Mann-Whitney p -values

| Country | Mean of: | Female | Male | p -value |
|-----------|----------|--------|-------|---------------|
| Hungary | q5 | 3,201 | 3,133 | 0,617 |
| | q6 | 3,294 | 3,292 | 0,952 |
| | q7 | 3,229 | 3,009 | 0,093 |
| S. Africa | q5 | 3,689 | 3,551 | 0,018 |
| | q6 | 3,531 | 3,453 | 0,221 |
| | q7 | 3,599 | 3,336 | 0,0000 |
| Romania | q5 | 2,959 | 2,939 | 0,999 |
| | q6 | 3,029 | 3,071 | 0,570 |
| | q7 | 3,136 | 3,015 | 0,328 |
| USA | q5 | 2,951 | 3,010 | 0,439 |
| | q6 | 3,031 | 3,044 | 0,767 |
| | q7 | 3,265 | 3,231 | 0,937 |
| Overall | q5 | 3,248 | 3,213 | 0,670 |
| | q6 | 3,254 | 3,231 | 0,806 |
| | q7 | 3,338 | 3,200 | 0,003 |

For the sample as a whole, females have a slightly more global view than the males in Q5 and Q6, but this difference is significant for Q7. The only significant differences at country level occur in SA for Q5 ($p=0,018$), and notably for Q7 ($p<0,0000$).

ANOVA and multiple comparisons were used to look at country differences within gender. For males, South Africa has the highest mean for each question. For Q5, South Africa's confidence interval is far above those of the other countries, whereas for Q6 there is slight overlap with Hungary, and for Q7 with the US. Multiple comparisons between South Africa and other countries show SA significantly higher in all cases except these two.

Females show an even stronger pattern. For each question, South Africa 's confidence interval is above those of the other three countries, with no overlap. Hungary comes in a clear second for Q5 and Q6, while Romania and US are almost identical and least global. But for Q7 the US is about level with Hungary. All multiple comparisons for Q5 and Q6 are significantly different except for Romania vs the US. The only differences for Q7 are for South Africa vs each of the other three countries.

H5: Differences between third- and fourth-year students

All students came from the third and fourth academic years. It is hypothesized that there are no differences between the third-year students of the four countries, or between the fourth years. It is also hypothesized that within each country students of both levels view the use of information and information systems similarly. Using ANOVA with multiple comparisons, it was found that, for all three questions, South Africa third-years' perceptions were significantly more global ($p < 0,001$) than those of the other three countries. For Q5 ($p = 0,029$) and Q6 ($p = 0,004$) Hungary scored higher than Romania. South African fourth-year students were more global for Q5 than Hungary ($p = 0,019$) and the US ($p = 0,002$), and for Q7 than Hungary ($p < 0,001$). Romania was significantly more global than Hungary in Q6 ($p = 0,045$) and Q7 ($p = 0,013$), and than the US for Q6 ($p = 0,013$).

Between-year differences by country were examined using *t*-tests by country (allowing for possible inequality of variances). The pattern varied according to country and question, and it could not be said that views on information changed consistently by academic level.

Significantly ($p < 0,05$) higher means came from fourth-year students (Romania: Q5 and Q6; US: Q7) and from third-year students (South Africa: Q6; Hungary: Q7). The sample means were higher for fourth-years (all US and Romania questions), third-years (South Africa), and mixed (Hungary). This could well be affected by the varied gender or subject or age mix in each year; these will be looked at later.

H6: Observations based on language differences

Language is often used as a surrogate measure for ethnicity, race or culture. Furthermore, US laws prevent researchers from asking a respondent's race. In the Romanian sample, ethnic Hungarian students spoke both Hungarian and Romanian, while Hungarian was the only language spoken by the student sample in Hungary. South Africa has eleven official languages, nine of which can be considered Black languages. According to the 2001 census, Black Africans constitute 79% of the population, Whites 9,6%, Coloureds 8,9%, and Indians or Asians 2,5% (<http://www.statssa.gov.za/census01/html/default.asp>). The SA sample included 18 different 'first languages': 71% spoke English (these included Coloured and Asian students as well as Whites), 22,6% a Black African language, and 5,2% spoke an 'Other' first language (Afrikaans, Chinese, Russian and French).

Three comparisons were made on the apparent effect of first language on views about information use:

- A. Romania: Romanian vs. Hungarian speakers
- B. South Africa: English vs. Black vs. Other
- C. English speakers: South Africa vs. the US

Nonparametric Mann-Whitney (adjusted for ties) or Kruskal-Wallis tests were used to cater for any possible small sample sizes and to avoid reliance on normality and other assumptions.

A. Romania: Romanian vs Hungarian speakers

There was a significant difference in response for Q6 ($p = 0,008$), where Romanian speakers averaged 3,24 vs the Hungarians' 2,96, mainly due to a much higher proportion of Romanian speakers selecting the international option. Q5 ($p = 0,13$) and Q7 ($p = 0,15$) were in the same direction, but not quite significant.

B. South Africa: English vs Black vs other languages

These tests yielded surprising results. South African students consistently stood out as having more 'international' scores than those of the three other countries. When grouped by language as explained above, the students with a Black African first language produced the most 'international' scores. For all three questions, Kruskal-Wallis tests produced scores with p values $<0,05$. Multiple comparisons showed significant differences between Black and English language speakers for Q5 ($p=0,042$) and Q7 ($p=0,001$), and for Q6 the p value was 0,092. In all cases the Black students had a more international score than the English speakers, mainly due to their choosing a higher proportion of the 'international' option. The same pattern held when subgroups of gender, age and speciality (business vs IS) were split by Black vs English, indicating that language results were not confounded by other demographic splits.

C. English speakers: South Africa vs the US

When the SA and US students with English as first language are compared, there are strong differences. Q5 and Q6 are significantly different with $p<0,000001$; with Q7 the p value is 0,062. The mean scores are always higher for the South African students, indicating their far stronger attitude towards international information and information systems.

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6 Overall effects of variables on results

The preceding sections have shown that the relative breadth of information per question for each country may be affected by one or more of the variables of age, gender, language, specialty and academic year. There is often an association between these variables. To assess the simultaneous effect of all variables on each question's mean score, forward stepwise multiple regression was carried out, using p -in and p -out values of 0,05. To create binary dummy variables, only the IS and business students from Romania were included, and in South Africa language was split into English and Black languages, excluding the 'other' group. Table 5 shows the variables significant enough to be included in the multiple regression equation. The percentage of the variance explained by these variables, R^2 , is also given.

Table 5 Significant p -values and R^2 from stepwise regression by question within country

| | Q5 | | | | Q6 | | | | Q7 | | | |
|-----------|-------|--------|-------|-----|-------|-------|-------|-------|-------|-------|--------|-------|
| Variable | Hung | Rom | S A | USA | Hung | Rom | S A | USA | Hung | Rom | S A | USA |
| Age | | 0,031 | | | | 0,010 | | | | 0,043 | | |
| Gender | | | 0,022 | | | | | | | | 0,008 | |
| Language | | | 0,018 | | | | 0,044 | | | | 0,0000 | |
| Specialty | 0,002 | 0,0001 | | | 0,011 | 0,007 | 0,003 | 0,053 | | | 0,041 | |
| Year | 0,035 | | | | | | 0,042 | | 0,011 | | | 0,064 |
| Adj R^2 | 1,7% | 14,5% | 1,6% | 0% | 1,1% | 10,6% | 3,9% | 0,5% | 1,8% | 1,7% | 5,3% | 0,5% |

In general the R^2 values are fairly low, indicating that variation in the scores per question within each country is due to many other aspects.

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7 Further analysis and discussion

Because of their prominence, the South African results were examined further to assess which subgroups most strongly supported global information. Cross-tabulations were done for each

question, split by a combination of gender, language, year and specialty.

- For Q5 the highest mean scores came from third-year black females: 3,882 for Business and 3,720 for IS; and from third-year black males: 3,735 for IS. The lowest subgroup scores were from English IS fourth years: 3,375 for males and 3,556 for females, and from third-year male English IS students: 3,467, and were still far above the averages of all other countries.
- For Q6 and Q7 the highest subgroup means came from the third-year Business students of both genders and language groups, and from Black third-year IS males. The lowest means were from fourth-year English IS students (male and female) and from third-year English IS students.
- In all cases the values for the lowest subgroups were higher than for those of their counterparts in the other three countries. In general there is still more variation between the scores of the four countries than between those of groups within South Africa.

It is interesting that the lowest scores tend to coincide with those who would in the past have had the highest scores for computer literacy, and the ones least affected by computer self-efficacy problems. Local research (Hart, Atkins, Petkar and Webber 1999) showed that those rating themselves lowest in computer-related skills were non-English speakers, females, and those with least prior computer experience. White English-speaking males were most prepared, and appeared most motivated to major in IS. After two or three years of study, the 'digital divide' for these groups diminished or disappeared. More recent local studies (Hart 2002; Seymour, Hart, Haralambous, Natha and Weng 2005) have indicated a turnaround of sorts – the previous 'have-nots' or 'historically disadvantaged' now seem to be the ones keenest to study IS.

While UCT students whose first language is a Black language tend to have stronger wishes for global data, the largely 'previously advantaged' English speakers at UCT also have far more of a disposition for international information than their counterparts in the US, Hungary and Romania. UCT students learn about information and information systems as tools that offer the decision maker competitive advantage and can be used as strategic weapons in the global arena. At Corvinus University Budapest, students are offered courses in e-business, Internet technologies and global communication strategy. At MSCD in the US, each department incorporates international components into their curriculum, and all business students are required to take an information systems survey course on the sophomore level. In this course, IS is presented as a tool for business and, like UCT, a tool for competitive advantage. Global or international study is achieved only through electives and an optional International Business concentration. Only management majors are required to take an International Business course. It is, of course, difficult to judge the comparative contents and approaches of courses and programmes.

Interesting counterpoints to South Africa are Hungary and Romania, where artifacts of 45 years of socialism might still be limiting the vision university students project today. However, the fundamental changes in higher education that took place from the late 1980s in Hungary, and somewhat later and more gradually in Romania, and the fact that present university students were born just before the change of the political regime, cast some doubt on the argument of systemic influences. This observation is further supported by statistical results comparing US to Romanian and Hungarian students, where scores overlapped among the three countries on Q5 and Q6 but lagged behind US responses on Q7 (global information question). A counterpoint is found among Romania response, however, where Romanian speaking students responded much higher to Q6 than Hungarian speaking students, suggesting that Romanian speakers expressed greater affinity toward computer supplied international business information.

The Gini Indices of Hungary (24,4) and Romania (28,8) are some of the lowest in the world,

suggesting a relatively equitable distribution of family incomes (CIA World Factbook 2006). Such relative equality may not foster the competitive spirit that South Africans (with one of the highest Gini Indices of 59,3) demonstrate, pointing toward cultural or economic, rather than political effects.

The South African and American institutions attempt to strike a balance in their business and technical disciplines. Sapientia University in Romania was somewhat of an exception in the region, where liberal arts education was balanced with strong technical subjects. In Hungary, the strong engineering traditions in information science may be one reason that business information is taught as a tool for managers and decision makers rather than an organizational resource or strategic weapon to be wielded in the market place. However, further empirical research is needed to validate this hypothesis.

Neither does Internet penetration shed adequate light on the breadth of vision demonstrated by South African students as compared to the other three countries, where Internet penetration is but 7,4% of the population compared to 68,1% in the US, 30,3% in Hungary, and 23,2% in Romania (Internet World Stats 2006). Of the four countries studied here, South Africa has the highest unemployment (25,2%) while the US, Romania, and Hungary show 5,1%, 6,5% and 7,1% respectively, possibly further contributing to South African competitiveness (CIA World Factbook 2006).

MSCD in Colorado, US, is not a typical American university in that the average student is older, likely to be studying for a second career and may already be burdened by existing career and family responsibilities. To many students, graduation will more likely ensure higher salaries than open new career doors, and the business curriculum at MSCD is driven more by discipline-technologies than by broader national and international market needs. Consequently students have a relatively clear vision of themselves within the local and national economy. While they are presented with the importance of a global economy, it is less clear if they understand how they and their nation fit within a global framework.

It is common to read that US students or citizens lack knowledge or interest in the world beyond their national boundaries (Lee 2006; Lewis 2000). Annual reports from the Institute of International Education (Open Doors 2000; 2003) indicate that while the number of US students studying abroad (less than 200000) is proportionally lower than those students from other countries, the numbers continue to rise. Nash (1997) suggests that AACSB, which has international guidelines for business curricula, may have helped advance the trend. Hungary joined the European Union in 2004 and, as a result, costs of labour mobility have been significantly reduced. Hungarian information experts have a good reputation in West European markets and show significant mobility across Europe.

It must be noted that these universities cannot necessarily be considered representative of their countries, and that an alternative selection may have yielded different results. The results obtained are however striking and perhaps unexpected, and suggest that the future business and information systems professionals of these countries are aware of the importance of information of a global nature.

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8 Conclusions

University students in all countries expressed a desire for broad-based information for business decision making, ranging from internal corporate data to international business information. However, while Hungarian, Romanian and US students' attitudes to information breadth were rather similar, a far higher proportion of South African students advocated access to global business information, and information systems able to deliver it. Within South Africa, females

and those speaking a Black language were most insistent on this international aspect. It is not clear why this should be the case. Hungary and Romania have enjoyed political and educational freedom since 1989, while the majority of South Africans obtained theirs shortly after. US students have not experienced educational or political oppression in living memory.

Further research is needed to uncover the reason for the striking differences, in all categories of student, between the viewpoints of South African students and those from the other three countries. It is suggested that additional data be gathered from different South African universities, as well as from other developed countries that may perhaps have a more international viewpoint than the United States. Results presented here are based on a snapshot in time. It is suggested that this study be repeated periodically in order to ascertain whether longitudinal data might display trends towards or away from globalization.

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