

A study of the interlinking between Asia-Pacific University Web sites

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Abstract

An investigation into the pattern of international interlinking between Asia-Pacific university web sites is described. AltaVista advanced searches were used for the data collection and network diagrams used to portray the results from four perspectives. It was found that each of the four angles allowed novel interpretations of the data, but that Australia and Japan were nevertheless clearly at the heart of the Web in the region, with Australia being a particularly common target of links and Japan having a more balanced profile of ingoing and outgoing hyperlinks. Interestingly, one of the perspectives mimicked an official grouping of less wealthy countries in the region whilst another contained the more developed countries, with Singapore and Thailand appearing in both. It was hypothesised that the nature of larger web sites covered was qualitatively different from that of smaller ones, making the deduction of relationships between the hosting institutions difficult from the link counts alone.

Introduction

Traditionally, the Institute for Scientific Information (ISI) database of citations between journal articles has been the principal medium for studying collaboration between universities. But in the era of the Web, hyperlinks between university Web sites are another vehicle with which to study interconnections, although these are likely to be, in general, a result of factors much less formal than paper co-authorship. On the Web, the origin and target of links can be studied using a search engine like AltaVista to count the number of pages in the site of university A that link to university B. The ISI-based counterpart to this would be to total the number of papers produced by scholars in university A that cite at least one scholar from university B. This would measure of the flow of information rather than the extent of collaboration, but in practice the two are probably related.

Hyperlinks are relatively rarely used to cite online scholarly articles. Instead they are more commonly used to recognise collaborating institutions, provide access to useful resources and information, or to give credit to tools or people associated with the author or site (Thelwall, 2001a-b). A count of Web links is a more complex phenomenon than a citation count but indicates at least the recognition of one institution by another. Counting Web links between institutions in different countries is a useful exercise in identifying patterns of international recognition and information flow.

The Asia-Pacific region is a particularly interesting area to study because of its combination of very different cultural and linguistic backgrounds in an economically important rapidly developing area. Increasingly, countries stretching

¹ Thelwall, M. & Smith, A. (2002). A study of the interlinking between Asia-Pacific university web sites, *Scientometrics*, 55(3), 335-348.

from China and Korea in the North, Myanmar to the West and New Zealand to the South East, share common interests in trade, education and politics. This is indicated by the formation of regional groupings such as ASEAN (The Association of SouthEast Asian Nations), the increasing awareness by Australia and New Zealand of their role in the region, and exchanges of students and teaching staff between universities in the region. In particular, many students migrate to Australia for tertiary education (Phillips & Stahl, 2001).

A standard technique for tracking international scholarly collaboration has been to draw a network diagram of the participating nations. Countries with academic co-authorship passing a certain threshold are typically connected with a line, sometimes with two or more widths representing the intensity of the collaboration. The threshold can be based upon the relative magnitude of the collaboration compared to the extent of total paper authorship, using Salton's measure (Glänzel & Schubert, 2001; Glänzel, 2001). The Glänzel & Schubert study covered the top 36 chemical publication producers from the year 1995 and in terms of co-authorship found a connection between Hong Kong and both Taiwan and China. There was also an Australia-New Zealand connection. Indonesia and Japan both did not collaborate significantly with other countries and Korea collaborates mainly outside the region, with the US. The Glänzel study covered a range of disciplines combined and included the 50 most active countries from 1995/96, revealing a strong collaboration connection between China and Hong Kong, and a weaker one between Australia and New Zealand. Korea, Japan and Australia collaborated significantly outside the region, all with the US but Australia also with the UK. On an international scale, then, formal scholarly collaboration within the Asia-Pacific region in 1995/96 was mostly very weak.

There have been a few previous studies that have used Web hyperlinks in a specifically international context. Smith (1999a) used a hyperlink-based metric to compare university Web sites in Australasia and Latin America. Smith (1999b) has also studied Australasian University backlinks, but did not find significant correlations between a hyperlink metric and journal publications. Leydesdorff & Curran (2000) compared the patterns of university-industry-government connections for Brazil with those for The Netherlands, finding both national linguistic dimensions and features in common between the two. Thelwall (2002) investigated different types of international sources for link count metrics to assess the Web impact of UK university Web sites, finding significant correlations between links from international sources and the research productivity of the target institution, affirming that the two phenomena are at least associated. Smith & Thelwall (2002) studied UK, Australian and New Zealand university interlinking, discovering that links between different institutions in the same country dwarfed international links and that New Zealand was relatively isolated. The metric used, the normalised propensity to link, was developed to be size independent, but using a different technique to Salton's measure. Ciolek (2001) has investigated links to and from Asia Pacific countries, not restricting the focus to academic sites. He investigated the use of automatic software for this task and produced tables of links between domains, but the purpose of the paper was not to analyse the data for patterns. Polanco, Boudourides, Besagni and Roche (2001) are developing techniques for mapping the clustering behaviour of Web sites.

The use of the Web as an information source is not without problems (Egghe, 2000; Bar-Ilan, 2001; Björneborn & Ingwersen 2001). In comparison to citations in scholarly articles, hyperlinks carry much less information, in the sense of being less closely related to the research process, but there is the potential for aggregation to

cancel this out to some extent (Thelwall, 2001a). What is much more problematic, however, is the issue of validity alluded to above, in other words the drawing of conclusions about the real world from the data.

In this paper, graphical techniques developed to describe interlinking between a set of Web sites or domains (Thelwall, 2001d) will be applied to universities from Asia-Pacific countries - a much larger collection of national university systems than has been attempted before. The research question will be to assess whether link count data obtained from AltaVista can be used to produce meaningful descriptive statistics about the patterns of educational information flow in the Asia-Pacific Web.

Method

Country selection

A selection of 13 Asia-Pacific countries were identified from the Web. It was decided to keep Hong Kong separate from China since it has a different top level domain name (hk rather than cn) and has clearly had a very different recent political and educational history. For each one an attempt was made to identify the domain name of each university. The main sources for these were the following Web sites.

- Universities worldwide <http://geowww.uibk.ac.at/univ/world.html>
- The UNESCO World Higher Education Database 2000 [CD-ROM]

In some cases all universities are in a common academic domain. For example in Australia the common ending is .edu.au. In other cases, such as the Philippines, there is an official domain but many universities use other types of domain names. When a common exclusively educational domain ending was found in the list of universities, this was used instead of the individual university domain names, and any universities not conforming to the pattern were added separately. As can be seen from the results in Table 1, the use of official educational subdomains is much more widespread than in Europe (Thelwall *et al.*, 2002). It is likely that some of the educational domains contained institutions below the level of universities, and perhaps also the sites of organisations that were merely affiliated to higher education but it is hypothesised that it would be more informative to maintain more inclusive educational categories. This has the additional benefit that the processing required by AltaVista to retrieve the link counts would be less complex, promising more accurate results. A few identified universities were excluded because they had domain names shared with other organisations and AltaVista would not have been able to find the required statistics for these.

Table 1. Domains included in the test for each country.

| Country | National domain | Domains included in test |
|-------------|-----------------|---|
| Australia | au | edu.au |
| China | cn | edu.cn |
| Fiji | fj | ac.fj |
| Hong Kong | hk | edu.hk cuhk.hk ust.hk hku.hk |
| Indonesia | id | ac.id |
| Japan | jp | ac.jp |
| Korea | kr | ac.kr |
| Malaysia | my | edu.my |
| New Zealand | nz | ac.nz |
| Philippines | ph | edu.ph ubaguio.edu aquinas-university.edu universityofbohol.com universityofcebu.net cpuic.edu usls.edu upou.org pwu.edu pnumanila.com.ph ndu.fapenet.org uic.globe.com.ph uerm.edu nulaoag.com mu.fapenet.org |
| Polynesia | pf | upf.pf |
| Singapore | sg | edu.sg |
| Taiwan | tw | edu.tw |
| Thailand | th | ac.th |
| Vietnam | vn | edu.vn hmu.vnn.vn solvay.vnn.vn vimaru.vnn.vn |

Data collection

AltaVista was used to provide the raw data for this study. There have been problems previously identified with its reliability for data collection (Rousseau, 1999; Bar-Ilan, 2000), but it seems to have improved its accuracy recently (Thelwall, 2001c) and appears to have particularly good coverage of university Web sites, at least in the UK (Thelwall, 2001a). It was used to count the number of pages hosted on the recognised educational domains of country A that linked to at least one page hosted by an included domain from country B. This type of request can be made using Boolean operators to combine the host and link commands. In the simplest case, such as Thailand to Singapore, the command is as follows.

```
link:edu.sg AND host:ac.th
```

This counts pages hosted on the ac.th domain that link to a page hosted on edu.sg domain. For links in the opposite direction the command is as follows.

```
link:ac.th AND host:edu.sg
```

For countries with more than one link, a statement had to be built up using Boolean logic. The case of links from Hong Kong to Indonesia is illustrated below.

```
link:ac.id AND (host:edu.hk OR host:cuhk.hk OR  
host:ust.hk OR host:hku.hk)
```

Links between all pairs of sets of university systems were then obtained in a single morning from AltaVista starting at 10.35am UK time, chosen for being in a quiet period on the Internet and therefore more likely to produce reliable results. The 15 X 15 – 15 queries were sent by a specially coded program to retrieve the results quickly and accurately. The latter is particularly important in the context of avoiding

typing errors in the longer Boolean expressions. At the same time requests were made for the number of pages on each site involved using the host: command. This was achieved using an automated script due to the number of queries involved.

Results and Discussion

Tables 2 and 3 show the results as reported by AltaVista, with the first showing summary statistics concerning the number of external links from Asia-Pacific country universities that target universities in each other country and the second giving the raw link count data.

Table 2. Summary of link count results from AltaVista on 10th January, 2002.

| Country | Domain | Total links to | Domain host count | External links per page |
|-------------|--------|----------------|-------------------|-------------------------|
| Australia | edu.au | 28136 | 3443953 | 0.008 |
| China | edu.cn | 3896 | 296616 | 0.013 |
| Fiji | ac.fj | 2187 | 582 | 3.758 |
| Hong Kong | edu.hk | 5698 | 421936 | 0.014 |
| Indonesia | ac.id | 513 | 36531 | 0.014 |
| Japan | ac.jp | 13387 | 3708113 | 0.004 |
| Korea | ac.kr | 4599 | 1936208 | 0.002 |
| Malaysia | edu.my | 771 | 25235 | 0.031 |
| New Zealand | ac.nz | 7592 | 858616 | 0.009 |
| Phillipines | edu.ph | 765 | 35697 | 0.021 |
| Polynesia | upf.pf | 1 | 55 | 0.018 |
| Singapore | edu.sg | 2160 | 184485 | 0.012 |
| Taiwan | edu.tw | 6951 | 782316 | 0.009 |
| Thailand | ac.th | 3896 | 159833 | 0.024 |
| Vietnam | edu.vn | 80 | 1681 | 0.048 |

[See end of document for Table 3]

The central problem, once the data had been collected, was to display it effectively in order to convey useful overall information about the interlinking of Asia-Pacific university Web sites. Figures 1 to 4 are network diagrams in which the width of the lines is determined by a link-related statistic and lines below a fixed width, 2% in this case, are not drawn (Thelwall, 2001d). They are produced by a Visual Basic Script program in Corel Draw 8 based upon the numbers in the raw link count data file. The position of the arrows was then fine-tuned by hand. This is another essential automation step that allows the widths of the arrows to be determined precisely and avoids human error in entering the resulting accurate numerical values. In the original versions of the figures all of the countries were included and several of the diagrams were dominated by Fiji because its small size gave it a high number of links per page. As a result of this it was decided to exclude those areas that were small enough to be susceptible to this kind of anomalous behaviour and so an arbitrary requirement of at least 1,000 pages was imposed, leading to the exclusion of both Fiji and Polynesia. Interestingly, in a follow-up test, AllTheWeb reported over 20 times as many pages in the ac.fj domain as AltaVista and so part of the problem may be due the variability in coverage that would logically seem to be much more of a problem with small domains than with the larger ones.

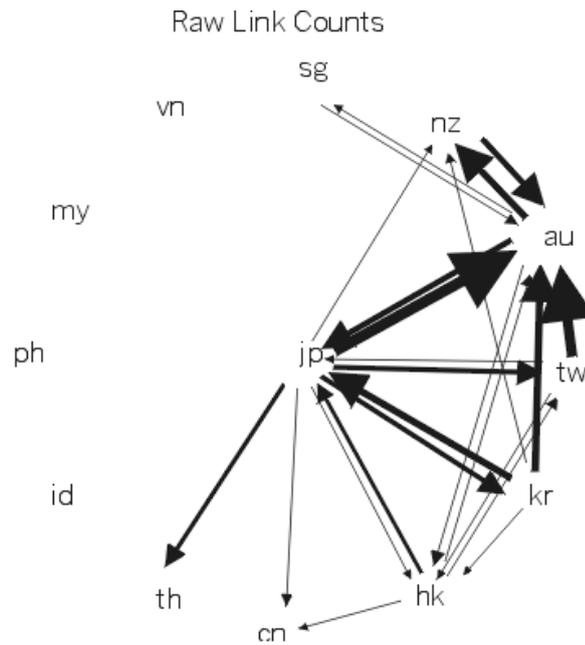


Figure 1. A diagram of the interconnectivity of national university systems, with arrow thickness proportional to raw link counts from university Web sites at the origin of the arrow to university Web sites at the target of the arrow.

Japan was placed as the central country in this diagram because it was the source or target of more links than any other country, 11 to Australia's 10. The organisation of the countries has been manipulated so that highly connecting universities are close together. This same configuration has been maintained for Figures 2 to 4 for ease of comparison between images. In Figure 1 it can be seen that both Australia and Japan are heavily linked to and from, with Taiwan, Korea, Hong Kong and New Zealand also exhibiting extensive interlinking. Singapore seems to have a particular relationship with Australia, both Hong Kong and Japan appear to be looking towards China and Japan links heavily to Thailand. It is clear that a number of countries, including large ones such as Indonesia, have not yet had a significant impact on the Web, nor do they appear to use the information on other Asia-Pacific states' university sites extensively.

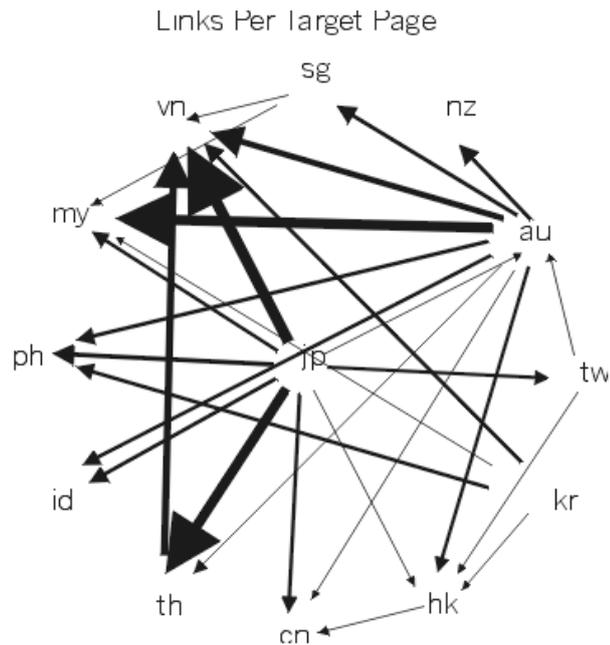


Figure 2. A diagram of the interconnectivity of national university systems, with arrow thickness proportional to link counts divided by the number of pages in the *target* university system.

In Figure 2 the pattern of interconnection is much more even. From this it can be seen that the countries with less developed Web sites actually attract a relatively large number of links per page. The dominant links here probably could not be predicted: Australia to Malaysia; Japan to Thailand; Japan to Vietnam. A possible explanation for the extent of the pattern seen is that many links may be created for purposes other than citing content. Examples of causes are “credit links” (Thelwall, 2001b) made to a Web site to indicate some kind of relationship with its owner, and exhaustive lists of links, such as lists of all regional universities, or all departments of computing in a specified region. The fact that the Asia-Pacific region can be conceptualised as a coherent geographic entity would make it more likely for pages to attempt to list all resources of any given type from these countries.

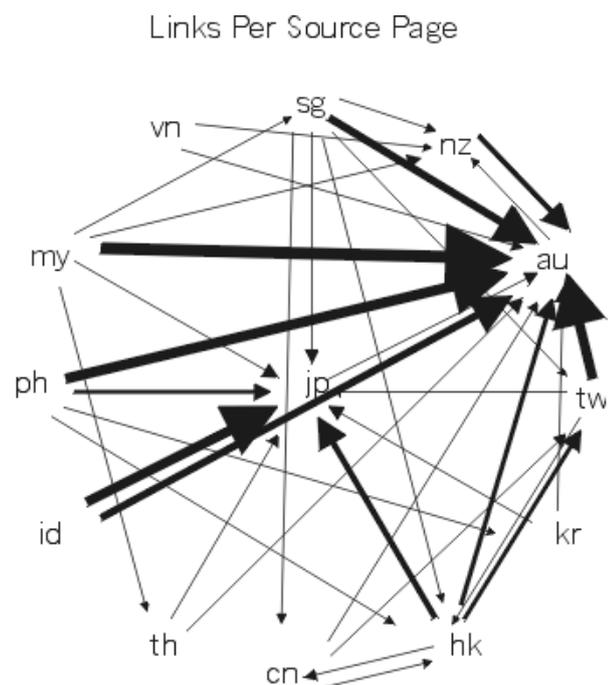


Figure 3. A diagram of the interconnectivity of national university systems, with arrow thickness proportional to link counts divided by the number of pages in the *source* university system.

In Figure 3 it can be seen where universities in a country tend to link to, independent of the size of the source. This clearly shows Australia to be the major target of links, rather than Japan. The difference between this and Figure 1 is that although the two countries have similar recorded Web site total sizes, Australia has approximately twice as many links per page targeted at it. This would seem to be a natural outcome of the dominance of English as the academic language and the abundance of different languages throughout the Asia-Pacific area. This would mean that in any given country, academics would be more likely to understand the content of the average Australian page than the average page hosted by any other country. In fact, many Web sites contain English language versions (e.g. China and Taiwan, Tang, 2001), but this does not invalidate the argument since it would still be the case that only a proportion are understandable to those reading English but not the native tongue. The argument does not hold, however, for Hong Kong, mainland China and Taiwan, which share a common written language. These three countries do interconnect reasonably well, but others connect better to both Australia and Japan. A possible additional explanation is that Australia hosts a quantity of standard resources for the Web on its servers, probably a combination of native Australian resources and English language international Web documentation, mainly from the USA.

From another perspective, it can also be seen that the countries that are the source of many arrows are more international in average orientation. It makes sense for the countries with smaller Webs to need to link more extensively outside national boundaries, whereas at the opposite extreme countries like Australia and Japan can probably satisfy information needs from within their own boundaries. It is probably also the case that in countries with more developed Webs, there is a different spectrum of types of page, perhaps with large numbers of pages that are of a type that do not normally contain external links, such as teaching notes and electronic HTML versions of PowerPoint slides. Additionally, with the use of proprietary teaching environments such as Blackboard and WebCT - probably more in the richer countries - additional pages and links will “disappear” since they won’t be accessible to the search engine robots. It is likely that these pages will contain between university links.

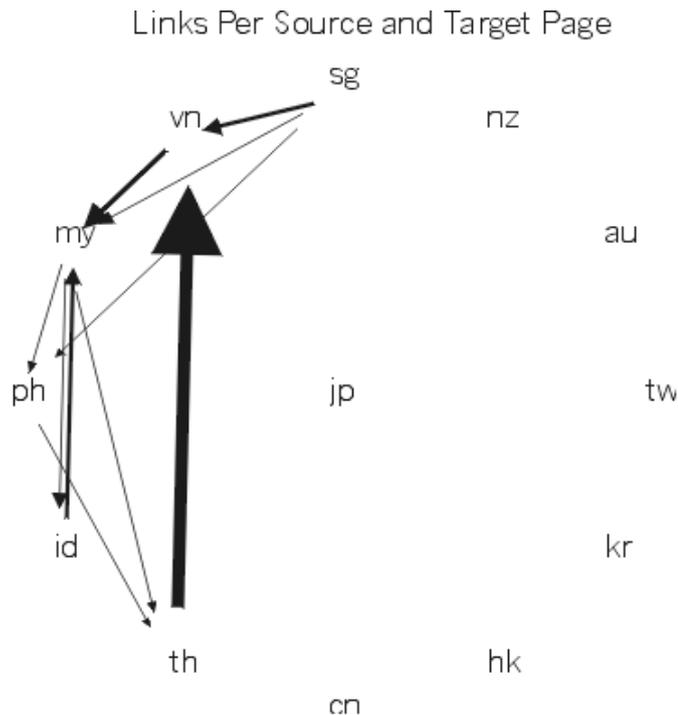


Figure 4. A diagram of the interconnectivity of national university systems, with arrow thickness proportional to link counts divided by the number of pages in the *source* university system and by the number of pages in the *target* university system.

Figure 4, the pictorial equivalent of the normalised propensity to link (Smith & Thelwall, 2002), except that it uses page numbers instead of staff numbers, is startlingly different to the others, and almost the reverse of Figure 1. This is a diagram that is unbiased in the sense of not influenced by the magnitude of either source or target domains. This is probably not the case in reality due to the differing nature of sites according to size, as discussed following Figure 3 and from Table 3 it can be seen that the actual numbers involved are relatively small, perhaps too small to be treated with confidence. However, it can be seen that countries with the lowest level of Web development at least do not ignore each other. It is perhaps also not a coincidence that the set of countries with links in this diagram is precisely the set of ASEAN nations included in the study, and so this is some evidence that this grouping is reflected in the patterns of linking between universities.

Conclusions

The methodology described allowed links between huge areas of the Web to be counted. This was possible through the combination of the facilities offered by AltaVista and the construction of a program to automatically query it and record the results.

It was also possible to make an additional deceptively simple pair of observations. Whilst larger university Web site systems tended to host more international links, the number of these per page was greater with the smaller systems. Similarly, whilst the bigger systems are most linked to, they are the least linked to per target page. Both of these phenomena could be explained by the hypothesis that the contents of larger university Web sites are qualitatively different from those of the smaller, probably containing more internally focussed pages such as student information and resources. It is expected that the future development of the Web will tend to minimise such differences, although it remains to be seen whether

they can be eliminated for different size nations. Although they are revealing about the nature of Web use, they should cause caution when attempting to infer underlying relationships between unequally sized educational Web site systems based solely upon the link counts.

The diagrams have given interesting perspectives on the data. It is clear that both Australia and Japan are central in the region in terms of the academic Web, with Australia perhaps exerting the most influence in terms of being the target of most links, although Japan is more balanced in terms of links. This echoes a comment of Basu (2001) concerning the South Asia region, "Foreign countries, as sources of new technology and as absorbers of trained manpower from developing countries, act as a significant axis in the interactive system comprising education, science, technology, industry and development that cannot be ignored." It is in stark contrast to the pattern for scholarly collaboration in 1995/96, however, where the only collaborations were Australia-New Zealand and China-Hong Kong (Glänzel, 2001). Two explanations are possible: either regional collaboration has increased over the past six years or Web information sharing has a different dynamic to formal scholarly collaboration. There is evidence that both of these are true. The associations previously found between Web links and research productivity suggest that the two are not unconnected, but it is also the case that the richer nations in the region make more use of the Web and are used as an information source by other countries. Australia may well have an advantage in the latter respect, with English being – so far – the de facto language of the Web, but it is not clear why the same does not apply to New Zealand, although Australia seems to be the more focussed on the Asia Pacific region of the two.

References

- BAR-ILAN, J. (1999). Search Engine Results over Time - A Case Study on Search Engine Stability. *Cybermetrics*, 2/3. Available: <http://www.cindoc.csic.es/cybermetrics/articles/v2i1p1.html>
- BAR-ILAN, J. (2001). Data collection methods on the Web for informetric purposes - A review and analysis. *Scientometrics*, 50(1), 7-32.
- BASU, A. (2001). A comparative analysis of India and other Asian countries based on science, technology and development indicators, *Research Evaluation*, 10(1) 19-31.
- BJÖRNEBORN, L. & INGWERSEN, P. (2001). Perspectives of webometrics. *Scientometrics*, 50(1), 65-82.
- CIOLEK, T. M. (2001). Networked information flows in Asia: the research uses of the Altavista search engine and "weblinksurvey" software. A paper for the panel on "Internet Research: Methodological Considerations in Assessing the Impact of the Internet in Asia", "Internet Political Economy Forum 2001: Internet and Development in Asia", The National University of Singapore, Singapore, September 14-15, 2001. Available:
- EGGHE, L. (2000). New informetric aspects of the Internet: some reflections - many problems. *Journal of Information Science*, 26(5), 329-335.
- GLÄNZEL, W. & SCHUBERT, A. (2001). Double effort = double impact? A critical view at international co-authorship in chemistry. *Scientometrics*, 50(2), 199-214.
- GLÄNZEL, W. (2001). National characteristics in international scientific co-authorship relations. *Scientometrics*, 51(1), 69-115.
- LEYDESDORFF, L. & CURRAN, M., (2000). Mapping university-industry-government relations on the Internet: the construction of indicators for a knowledge-based

- economy, *Cybermetrics*, 4. Available:
<http://www.cindoc.csic.es/cybermetrics/articles/v4i1p2.html>
- PHILLIPS, M. W. & STAHL, C. W. (2001). International trade in higher education services in the Asia Pacific region: trends and issues, *Asian and Pacific migration journal*, 10(2), 273- 301
- POLANCO, X., BOUDOURIDES, M. A. BESAGNI D. and ROCHE, I. (2001). Clustering and mapping web sites for displaying implicit associations and visualising networks. University of Patras, Greece.
- ROUSSEAU, R., (1999). Daily time series of common single word searches in AltaVista and NorthernLight, *Cybermetrics*, 2/3. Available:
<http://www.cindoc.csic.es/cybermetrics/articles/v2i1p2.html>
- SMITH, A. (1999). The Impact of Web sites: a comparison between Australasia and Latin America. In *Proceedings of INFO'99, Congreso Internacional de Informacion*, Havana, 4-8 October 1999. Available:
<http://www.vuw.ac.nz/~agsmith/publns/austlat/>
- SMITH, A. G. (1999b). A tale of two web spaces: comparing sites using Web Impact Factors, *Journal of Documentation*, 55(5), 577-592.
- TANG, R. (2001). Developing multilingual academic web sites: a study of Chinese university web design for the Chinese and English versions. In: *Proceedings of the 64th Annual Meeting of the American Society for Information Science and Technology*, Medford, NJ: Information Today, pp. 458-471.
- THELWALL, M. (2001a). Extracting macroscopic information from web links. *Journal of the American Society for Information Science and Technology*, 52 (13), 1157-1168.
- THELWALL, M. (2001b). The top 100 linked pages on UK university Web sites: high backlink counts are not usually directly associated with quality scholarly content, University of Wolverhampton.
- THELWALL, M. (2001c). The Responsiveness of Search Engine Indexes, *Cybermetrics*, 5(1),
<http://www.cindoc.csic.es/cybermetrics/articles/v5i1p1.html>.
- THELWALL, M. (2001d). Exploring the link structure of the Web with network diagrams, *Journal of Information Science* 27(6) 393-402.
- THELWALL, M. (2002). A comparison of sources of links for academic Web Impact Factor calculations, *Journal of Documentation*, 58(1), 60-72.
- THELWALL, M. Binns, R. Harries, G. Page-Kennedy, T. Price E. and Wilkinson, D. (2002). European Union Associated University Websites, *Scientometrics*, 53(1), 95-111.

Table 3. A table of the counts of links between Asia-Pacific national university systems, as reported by AltaVista on the 10th of January, 2002.

| From/to | edu.au | edu.cn | ac.fj | edu.hk | ac.id | ac.jp | ac.kr | upf.pf | edu.my | ac.nz | edu.ph | edu.sg | ac.th | edu.tw | edu.vn |
|----------------|---------------|---------------|--------------|---------------|--------------|--------------|--------------|---------------|---------------|--------------|---------------|---------------|--------------|---------------|---------------|
| edu.au | | 639 | 2116 | 1715 | 171 | 3799 | 714 | 0 | 418 | 4648 | 174 | 981 | 577 | 702 | 15 |
| edu.cn | 500 | | 1 | 427 | 9 | 287 | 62 | 0 | 8 | 54 | 14 | 40 | 18 | 606 | 0 |
| ac.fj | 3 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| edu.hk | 1501 | 797 | 2 | | 16 | 2164 | 193 | 0 | 34 | 194 | 32 | 270 | 100 | 1393 | 0 |
| ac.id | 248 | 1 | 0 | 7 | | 333 | 14 | 0 | 14 | 22 | 6 | 24 | 25 | 11 | 0 |
| ac.jp | 7863 | 1318 | 17 | 986 | 182 | | 3111 | 0 | 113 | 909 | 215 | 336 | 2621 | 3092 | 31 |
| ac.kr | 4740 | 474 | 10 | 977 | 53 | 4660 | | 0 | 49 | 1094 | 168 | 257 | 263 | 769 | 9 |
| upf.pf | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| edu.my | 285 | 4 | 0 | 23 | 13 | 62 | 23 | 0 | | 57 | 8 | 31 | 36 | 13 | 0 |
| ac.nz | 3954 | 48 | 34 | 156 | 8 | 336 | 57 | 1 | 15 | | 13 | 95 | 44 | 50 | 1 |
| edu.ph | 344 | 25 | 0 | 52 | 7 | 100 | 41 | 0 | 3 | 22 | | 12 | 39 | 38 | 0 |
| edu.sg | 1317 | 290 | 1 | 250 | 23 | 401 | 127 | 0 | 61 | 302 | 49 | | 116 | 222 | 5 |
| ac.th | 392 | 35 | 6 | 91 | 19 | 304 | 44 | 0 | 27 | 77 | 28 | 45 | | 55 | 18 |
| edu.tw | 6986 | 265 | 0 | 1014 | 12 | 940 | 213 | 0 | 28 | 210 | 58 | 68 | 57 | | 1 |
| edu.vn | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | |