Academic Home Pages and Nobel Laureates

Michael Nelson

mnelson@uwo.ca
Faculty of Information and Media Studies, North Campus Building, Room 240
University of Western Ontario, London, Ontario, Canada N6A 5B7

Abstract
An academic home page is the home page of a researcher or academic who has an institutional affiliation where the home page is hosted. We are interested in studying the properties of the academic home pages of Nobel Prize winners for the last five years. Some basic characteristics such as the inclusion of the individuals' photo and email, inclusion of a bibliography are determined for the last five years of Nobel Laureates in physics, chemistry and economics. In addition the number of links to these web pages is collected. The average number of links pages citing each of academic home pages was 105.5 for physics, 32.5 for chemistry and 132.1 for economics. Nobel laureates and laureates of chemistry in particular do not seem to make good use of the web for academic communication purposes.

Introduction

Nobel Prize winners have been the subject of informetric studies since the 1960's when Eugene Garfield (1970, 1973) examined the highly cited papers and scientists and discussed predicting who will win the next Nobel Prize. The tradition has been continued by ISI (2003) to the present day. We know the prize winners are highly cited but how do they use the World Wide Web? Do Nobel Prize winners have a large number of links from other web pages to their personal web pages? What are the characteristics of the personal web pages of Nobel laureates? We investigate these questions for the Nobel laureates for the last five years for the subjects of physics, chemistry and economics.

Background

Walsh, Kucker and Maloney (2000) show that computer mediated communication in general is positively associated with scientific productivity and collaboration. Their study concentrated on e-mail but did mention other technologies such as online journals.

On a macro scale of universities and departments, Thelwall (2002) showed that links to a university web site are correlated with other measures of research productivity. Our interest is more on the micro level of individual researchers.

Another study that relates to our selection of different subject areas is a study by Kling and McKim (2000). They investigated electronic media in scientific communication and how it differs across different scientific fields. In particular, they looked at e-print servers, electronic journals, paper and electronic journal enhancement and digital libraries. They used an institutional social shaping approach to explain the differences between fields in their use of electronic media. We want to see if there are any differences between the scientific fields in our sample.

Narsesian (2004) discusses the personal home page on the web as an information source. Most of his discussion is around home pages in general, not necessarily academic pages. He uses a definition from De Saint-Georges (1997): "presentation of the self in digital (hypertextual) form, authored by one individual, and which (i) emphasizes a person (minimally, by a picture or a name); and/or (ii) a person's current activities; and/or (iii) professional experience; and/or (iv) displays a person's interest (in the body of the text and/or through hyperlinks to other sites)."

This study will also use this definition without the phrase "authored by one individual" since many of the academics studied are part of a larger institution which has created the pages. In particular, I am interested in the characteristic "(i) emphasizes a person (minimally, by a picture or a name)" and in these pages as a source of information about both the person and their academic pursuits. A better name for these pages is *academic home pages.*

Dillon and Gushrowski (2000) study the personal web page as a genre and try to characterize these pages by looking at a number of characteristics of a sample of personal home pages. They used graduate students to recommend which elements of a web page are desirable features of a web page. The top ranked features were: title, e-mail address, update date, table of contents, create date, external

Proceedings of ISSI 2005, pages 193–196.
Edited by P. Ingwersen and B. Larsen.

links, welcome message, graphics, photographs and brief biography. They also found broad agreement on the elements that make a good home page.

Data Collection

In order to study the academic home pages of Nobel Laureates, the home pages of Nobel Prize winners from the last five years (1999-2004) were analyzed in three subject areas: physics, chemistry and economics. The winners in these subject areas are most likely to have an academic appointment. The winners and their home pages can easily be found at either the web site for the Nobel Prize Foundation, Nobel.org (2005) or the Nobel Prize Internet Archive (2005). The first thing that you notice is that some of the links are not to a personal or academic home page but to a page their institution (or someone else) has mounted announcing that they have won the Nobel prize with sometimes copies of the acceptance speech and short biographical information. In these cases a further search using Google or other search engines was carried out to find the academic home page. Another problem is that several winners had more that one institutional affiliation. Either two universities, or more often a regular university department and a special research institute either within their home institution or somewhere else. In these cases, if the individual had two web pages, both were included in the study. In three cases the researchers were retired and had no presence on the web other than announcements about the winning of the Nobel Prize and so were not included. In some cases it was obvious the individual was retired but still maintained an academic web page, so they were still included. Two web sites were "not found" during the single week of data collection so could not be included. See table 1 for the final totals included.

Table 1. Number of individuals and academic web pages in the study.

Subject	Prize Winners	Individuals included	Web sites included
Physics	17	16	19
Chemistry	15	13	15
Economics	12	12	13

For each academic home page the following characteristics were noted:

- Is there a photo of the individual?
- Is their e-mail included?
- Is there a short biography or CV (or a link to one)?
- Is there a bibliography of any length (or a link to one)?
- Are there any direct links in the bibliography to online papers?
- Is there a description of their research area or particulars?
- Is there a description of teaching or link to teaching materials?
- Is there any personal information about family or other interests (or link)?
- Is there a date of last update on the page?

Some of these were from the list compiled by Dillon and Gushrowski (2000), others such as "looking for links to online papers" were selected as indicators of academic use and likely information that others might link to.

In addition each page was searched on the Alta Vista search engine (AltaVista.com) using the "link:" search on the URL of the page being studied to find the number of pages that have links to the studied pages. No normalization for links from the same domain was done. In at least two cases the pages studied were redirects from the URL originally found. In these cases a "link:" search was also done on the original URL and added to the new one. This could affect the final count for some other pages if they were recently changed URL's but were not detected. A few URL's were searched again a few days later to check the consistency of results and they were either exactly the same or within 1 or 2 percent.

Results

The main summary of the characteristics is in table 2. It is interesting to note that the most consistent characteristic was the fact that the page had a photo, even more common than having an email contact. As a reviewer suggested, this may be an anti-spam measure. Most pages did have a mail address and phone number, but the statistics were not collected as we were interested in how the internet is being used! The description of research was surprisingly low at about 65%, but many times this could be inferred from the context of the department or by the titles in a bibliography. It was only coded as a positive when there was a least one full sentence describing the research area. The bibliography characteristic is also quite low at 57%, considering this was coded as positive if there was at least one bibliographic citation on the home page or a link to a page with even a short bibliography, including a curriculum vita. I also expected to have more than 9% of the sites to have links to electronic copies of research papers, so this does not seem to be a common practice in this group. The teaching is low but can be explained by the fact that some individuals are retired, some work in industry, and some are directors of special institutes or hold other administrative positions.

Table 2. Properties of academic home pages.

	Physics (19)	**Chemistry (15)**	**Economics (15)**	**Totals**
email	14	10	8	32 (65.3%)
photo	18	13	11	42 (85.7%)
Bio or CV	10	9	6	25 (51%)
Bibliography	5	12	11	28 (57.1%)
Links to papers	3	1	5	9 (18.4%)
Research	12	12	7	31 (63.3%)
Teaching	1	3	6	10 (20.4%)
Personal Info.	1	1	1	3 (6.1%)
Date Updated	7	7	5	19 (38.8%)

Links to Nobel Laureate pages

As mentioned earlier, AltaVista.com was used to estimate the number of links to these pages.

There was no adjustment of the numbers obtained from the search. The average number of pages citing each of academic home pages was 105.5 for physics, 32.5 for chemistry and 132.1 for economics (table 3). Chemistry stands out as having very few links, even smaller when you consider that some are navigation links and many are links from pages discussing the Nobel Prize only. An ANOVA test on these numbers using a post hoc test shows that chemistry pages are significantly different from economics, but not significantly different from physics. There may be several factors contributing to the generally small number of citing pages. First, Nobel prizes tend to be given very late in a scientist's career so the average age of the recipients is much older than average researcher, so one may argue they didn't grow up with the Web as part of their research culture. As a result, they may not have many resources, such as research papers, that are worth linking to. Also, their career is established so they don't need to look for new ways to communicate. Even so there are big differences between subject areas. It appears that the Web is not a medium of choice for the chemistry community, even though they seemed to use the sites for the usual academic purposes, for example they have the highest proportion of bibliographic references on their sites.

Table 3. Number of links to academic home pages

	Mean	**Median**	**Maximum**
Physics	105.5	62	448
Chemistry	32.5	13	124
Economics	132.1	93.5	375

Some problems

A few pages did not seem to be well maintained, and appeared out of date. A least two sites were "not found". In some cases it was not easy to decide which were the "official" academic web sites particularly as several institutions had a special web page celebrating the winning of the Noble Prize and this was the page listed by the official Nobel Prize website. Also, when using AltaVista as the search engine, the numbers are really only a starting point as there could be other web sites linking to our web pages, but at least the numbers should be comparable.

Conclusion

I expected to have a larger number of pages that link to Nobel Laureates academic web pages, since they include pages that only discuss the Nobel Prize, including the Nobel Prize Foundation. The next step would be to compare, Nobel Prize winners with a random sample of other academic home pages to see if they differ, and if so, how do they differ. It has been suggested that another comparison between personally maintained and institutionally maintained academic web pages would be interesting.

References

Dillon, A., & Gushrowski, B. (2000). Genres and the web: is the personal home page the first uniquely digital genre? *Journal of the American Society for Information Science*, 51(2), 202-205.

Garfield, E. More on forecasting Nobel prizes and the most cited scientists of 1972! *Current Contents*, No. 40 p.5-6, October 3, 1973. Reprinted in: *Essays of an Information Scientist*, Vol. 1, p.487.

Garfield, E. Citation Indexing for studying science. *Nature*, 227 (5259) p.669-671, 1970.

Reprinted in: *Essays of an Information Scientist*, Vol.1, p.132-138.

Kling, R. and McKim, G. (2000) Not just a matter of time: field differences and the shaping of electronic media in supporting scientific communication, *Journal of the American Society for Information Science*, 51(14), p.1306-1320, Dec. 2000.

Narsesian, S. (2004). Personal home pages as an information resource. *Webology*, 1(2), Article 5. Retrieved December 15, 2004 from: http://www.webology.ir/2004/v1n2/a5.html

NobelPrize.Org (2004). Retrieved January 27, 2005 from: http://nobelprize.org/.

Thelwall, M. (2002) Conceptualizing documentation on the web: an evaluation of different heuristic-based models for counting links between university web sites, *Journal of the American Society for Information Science and Technology*, 53(12), p.995-1005, October 2002.

Walsh, J., Kucker, S. and Maloney, N.G. (2000) Connecting minds: Computer-Mediated communication and scientific work. *Journal of the American Society for Information Science*, 51(14), 1295-1305.

Wu, Ona. (2004). The Nobel Prize Internet Archive. Retrieved January 27, 2005 from: http://www.almaz.com/nobel/.