

Is there a Scandinavian psychology? A bibliometric note on the publication profiles of Denmark, Finland, Norway, and Sweden

HENRIK OLSSON

Department of Psychology, Uppsala University, Sweden

Olsson, H. (1999). Is there a Scandinavian Psychology? A bibliometric note on the publication profiles of Denmark, Finland, Norway, and Sweden. *Scandinavian Journal of Psychology*, 40, 235–239.

This note presents a quantitative bibliometric analysis based on information obtained from the PsycINFO database concerning publication patterns in different subfields of Scandinavian psychology for the years 1984 to 1997. A cluster analysis shows that the publication profiles of the Scandinavian countries are more similar to each other than to both the profile of the USA and a norm profile based on all countries except the USA and Scandinavia. The main differences are that the relative proportions of articles dealing with psychological disorders are higher and the relative proportions of articles dealing with educational psychology are lower for Scandinavia than for the rest of the world. Within the Scandinavian countries, Finland and Sweden form one cluster with higher relative proportions of psychophysiological articles, and Denmark and Norway form one cluster with higher relative proportions of articles dealing with psychological disorders.

Key words: Scandinavian psychology, publication profiles, bibliometric studies.

Henrik Olsson, Department of Psychology, Uppsala University, Box 1225, SE-751 42 Uppsala, Sweden. E-mail: henrik.olsson@psyk.uu.se

How can a country's psychological research be characterized? This is one of the questions that are addressed in reviews of psychology in different countries, most notable are perhaps the chapters appearing in the *Annual Review of Psychology* and in the *International Handbook of Psychology* (Gilgen & Gilgen, 1987). Often, however, these articles and chapters do not include a quantitative analysis of articles published in different subfields (e.g., Adair *et al.*, 1998). Further, even if the psychology in different countries has been rather thoroughly described, there has been little effort in trying to compare the subject matter in different countries (e.g., Gilgen & Gilgen, 1987).

In this note, I try to remedy some of these gaps in the literature with respect to the Scandinavian countries. Is there such a thing, I ask, as a Scandinavian psychology? Scandinavian psychology, especially Swedish psychology, has been subject of a number of evaluations and reviews, but quantitative data are rarely provided (see e.g., Hugdahl & Öhman, 1987; Köppe, 1987; Rönnerberg, 1986; Ursin, 1987; Öhman & Öhngren, 1991, 1992). The aim of this study is to provide publication profiles for the Scandinavian countries in order to examine (a) similarities and dissimilarities between the publication profiles of Scandinavian countries, (b) similarities and dissimilarities between Scandinavian countries and the profile of the USA and a norm profile based on all countries except the USA and Scandinavia.

METHOD

The Database

I used a subset, the years 1984 to 1997, of the American Psychological Association's (APA's) PsycINFO database to retrieve information about the publication patterns of Scandinavian countries. The information was retrieved with the WebSPIRS interface.

The Categories

Categorizing psychological research is always difficult; almost every division in subfields can be criticized. Instead of trying to make my own classification system I used the content classification code system in APA's PsycINFO database. The major categories of this system are shown in Table 1.

The Information Retrieved

The main information retrieved from the database was the total number of articles produced by each country. Publication profiles were obtained by retrieving the total number of articles in each of the main categories in the PsycINFO content classification code system (see Table 1). Apart from Denmark, Norway, Finland and Sweden, a "norm" publication profile was also obtained for the USA and one for the rest of the world. A separate profile was obtained for the USA as about 50% of the articles in the PsycINFO database for the years 1984 to 1997 have first authors affiliated with departments or other institutions in the USA.

A measure based on the relative number of articles in each classification category was defined in order to obtain comparable profiles between countries. The measure is simply the number of articles in each category divided by the total number of published articles for each country or group of countries.

The profiles are analyzed by visual inspection and cluster analysis with Euclidean distances and a nearest neighbor algorithm. All analyses are based on the first author's affiliation.

An article can be classified in several categories; so strictly speaking, we are not talking about separate entries in the content categories. This is not a major problem as the interest is in characterizing the research published, not on the exact number of articles in the different categories.

RESULTS

Table 2 presents the total number of articles produced in each Scandinavian country. Sweden has about twice as many publications as Finland, and almost three times more than Norway and Denmark. These are somewhat unfair comparisons as Sweden has a larger population than the

Table 1. *The PsycINFO Content Classification System (Subcategories not Shown)*

Classification Code	Classification Category
2100	General Psychology
2200	Psychometrics and Statistics and Methodology
2300	Human Experimental Psychology
2400	Animal Experimental and Comparative Psychology
2500	Physiological Psychology and Neuroscience
2600	Psychology and the Humanities
2700	Communication Systems
2800	Developmental Psychology
2900	Social Processes and Social Issues
3000	Social Psychology
3100	Personality Psychology
3200	Psychological and Physical Disorders
3300	Health and Mental Health Treatment and Prevention
3400	Professional Psychological and Health Personnel Issues
3500	Educational Psychology
3600	Industrial and Organizational Psychology
3700	Sport Psychology and Leisure
3800	Military Psychology
3900	Consumer Psychology
4000	Engineering and Environmental Psychology
4100	Intelligent Systems
4200	Forensic Psychology and Legal Issues

other countries. But a measure that controls for population, the total number of articles divided by the population, still shows that Sweden comes out first with Norway and Finland on second place and Denmark last.

Fig. 1 shows the proportions of articles in each category for Scandinavia, all other countries except the USA and Scandinavia, and the USA. The two most apparent differences are: Scandinavia has a higher value for *Psychological and Physical Disorders* (32) than the rest of the world, and there are fewer articles categorized as *Educational Psychology* (35) for Scandinavia than for the rest of the world. The third largest difference concerns *Physiological Psychology and Neuroscience* (25), where Scandinavia has higher values.

If we compare the proportions for Scandinavia with these of the USA, we find three large differences between the two profiles. The first two are the same as those in the

comparison between Scandinavia and the rest of the world: Scandinavia has a higher value for *Psychological and Physical Disorders* (32) than the USA and there are fewer articles categorized as *Educational Psychology* (35) for Scandinavia than for the USA. The third large difference is that Scandinavia has a larger proportion of articles characterized as *Physiological Psychology and Neuroscience* (25) than the USA have.

The publication profiles for the USA and all other countries are similar with only minor differences. One difference is that the USA has a larger proportion of articles characterized as *Health and Mental Health Treatment and Prevention* (33) than *Psychological and Physical Disorders* (32). For the rest of the world, these two proportions are nearly the same with a slight tendency for a reversed order.

Fig. 2 shows the publication profiles of Denmark, Finland, Norway, and Sweden. The profiles for the Scandinavian countries are similar. The three categories with the highest proportions are the same for all Scandinavian countries (in descending order): *Psychological and Physical Disorders* (32), *Health and Mental Health Treatment and Prevention* (33), and *Physiological Psychology and Neuroscience* (25).

A closer inspection of Fig. 2 reveals at least two differences between the countries: Denmark and Norway have higher values for *Health and Mental Health Treatment and Prevention* (33) than Sweden and Finland. Sweden and Finland, on the other hand, have higher values for *Physiological Psychology and Neuroscience* (25).

The preceding analysis suggests that there are some specific features of Scandinavian psychology that distinguish it from the USA and the rest of the world. This conclusion is also confirmed by a cluster analysis of the publication profiles. Going from left to right in Fig. 3 we see that the Scandinavian countries form one cluster, and the USA and all other countries form another. The differences within the Scandinavian countries are also evident, with Sweden and Finland forming one cluster and Denmark and Norway another one.

DISCUSSION

The results of this study suggest that there is a Scandinavian psychology, but also that there are differences within Scandinavia. The main differences between Scandinavia

Table 2. *Number of Journal Articles, Chapters, Other and Total Number of Articles and the Total Number of Articles Divided by the Population (per 100, 000) for The Scandinavian Countries (1984-1997)*

Country	Journal Articles	Chapters	Other (e.g., commentary)	Total	Total Divided by Population
Denmark	2088	187	37	2312	0.44
Finland	3262	180	21	3463	0.67
Norway	2708	222	20	2950	0.67
Sweden	6067	514	239	6820	0.77

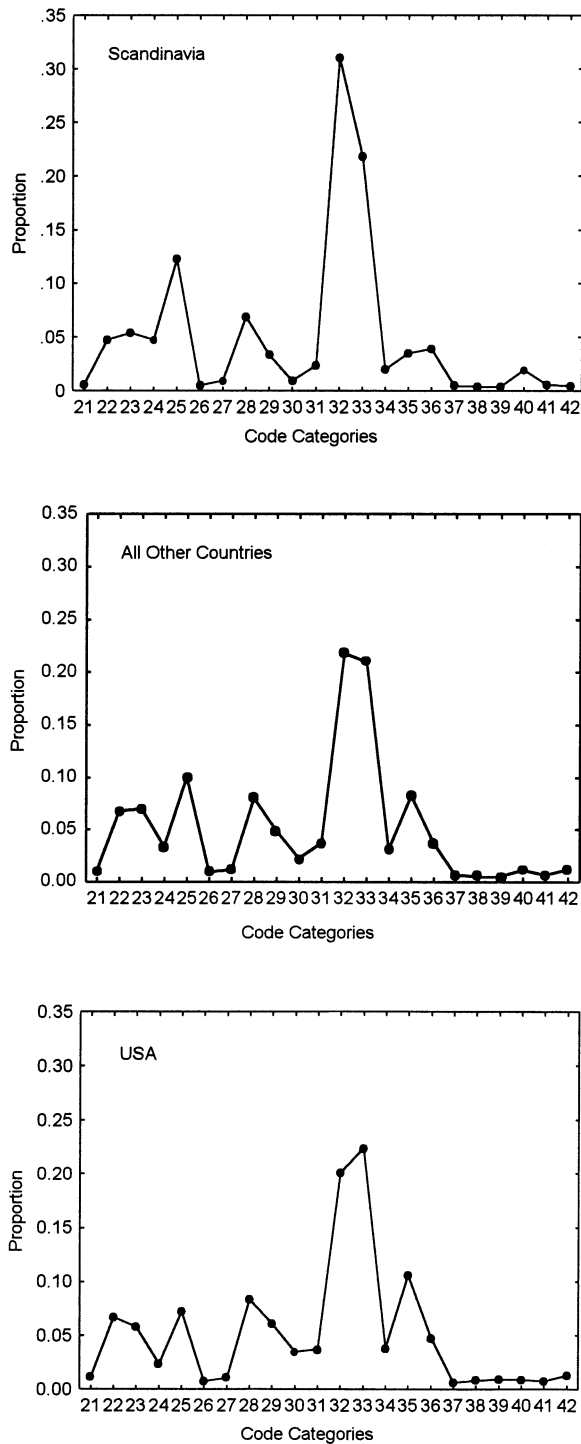


Fig. 1. Proportion of total number of articles for each code category for Scandinavia, all other countries except the USA and Scandinavia, and the USA.

and the rest of the world are that the relative proportions of articles dealing with psychological disorders are higher for Scandinavia than for the rest of the world, and that the relative proportions of articles dealing with educational psychology are lower for the Scandinavian countries than

for the rest of the world. Further, Scandinavia has more psychophysiological and neuroscience research than the USA. This observation is consistent with the conclusion that there is an “overwhelming interest in relating cognitive functions to neuropsychology”, presented in a review of cognitive psychology in Scandinavia (Rönnerberg, 1986, p. 130). I also note that traditionally, Scandinavia has been considered strong in biological psychology (see e.g., Hugdahl & Öhman, 1987). Within the Scandinavian countries, Finland and Sweden form one cluster with higher relative proportions of psychophysiological articles, and Denmark and Norway with higher relative proportions of articles dealing with health treatment and prevention.

In this study, I have characterized the psychology in the Scandinavian countries at a rather high level of abstraction. I believe that it is important to first sort out the general trends and then, if possible, move on to the more specific and detailed analyses. There are also problems with more fine-grained analyses. For example, each general classification category shown in Table 1 can be broken down in several subcategories, but as many countries do not publish many articles there will be very few articles, if any, in some categories. Moreover, future research need to deal with other possible problems associated with the PsychINFO classification system. For example, the categories in the system are rather traditionally defined and this might be disadvantageous to cross-disciplinary research. One solution could be to perform similar analyses with broader databases such as the Science Citation Index Expanded (SCIE) or Social Sciences Citation Index (SSCI) databases.

This study has been concerned with a descriptive characterization of the content and quantity of articles published by researchers from the Scandinavian countries. Several important questions remain unanswered. Why do the Scandinavian countries have these publication patterns? What factors, historical or other, contribute to the pattern of results in this study? At this point I can only speculate. Some of the differences within countries, for example the high peaks for *Psychological and Physical Disorders* (32) and *Health and Mental Health Treatment and Prevention* (33) could be explained by different publication traditions within certain disciplines. Many authors and relatively few pages often characterize papers published in clinical psychology research and clinical research in the affinity of medicine. Consequently, with more people carrying out the research and fewer pages to write, the output measured by number of articles from this research should reasonably be higher. The differences between Scandinavia and the rest of the world could possibly be explained by the tradition in Scandinavia of a strong public sector with health care available for all citizens. This would provide fertile grounds for research in clinical settings, such as psychological and physical disorders. It must be stressed that to fully understand how the academic culture in Scandinavian psychology emerged, and how it differs from the rest of the world,

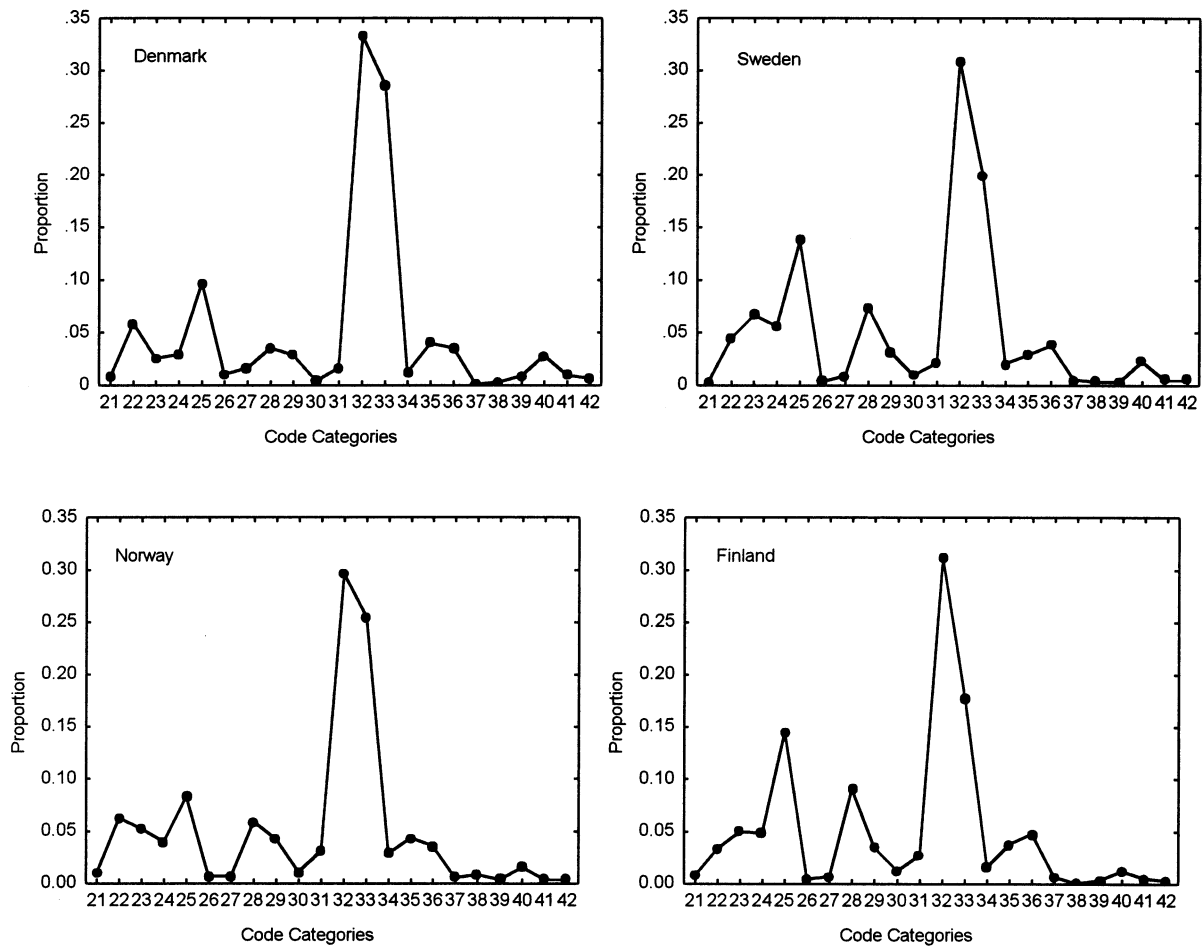


Fig. 2. Proportion of total number of articles for each code category for Denmark, Sweden, Norway, and Finland.

more detailed analyses of historical and bibliometrical data is needed. For example, countries with completely different publication profiles could be compared with the Scandinavian countries in order to assess the critical factors in shaping the research carried out in the countries.

There is, however, another important issue characterizing a country's research; the quality of the research. Although not the topic of this paper, it should be pointed out that the research community does not ignore the publications from the Scandinavian countries. In a recent *Science* article, May (1997) analyzed *The Scientific Wealth of Nations*, as evidenced by impact factors, that is, the number of citations divided by the number of publications. The analysis shows that Scandinavian psychology and neuroscience are highly influential. In psychology, the USA is number one, but Sweden comes second and Denmark third. In neuroscience Sweden is number one and Denmark is number five.

To conclude: This paper constitutes a first step toward a quantitative characterization of Scandinavian psychology. Obviously, more research is needed. Nevertheless, I think it is safe to say that there are certain features of Scandinavian psychology that differentiates it from the rest of the world

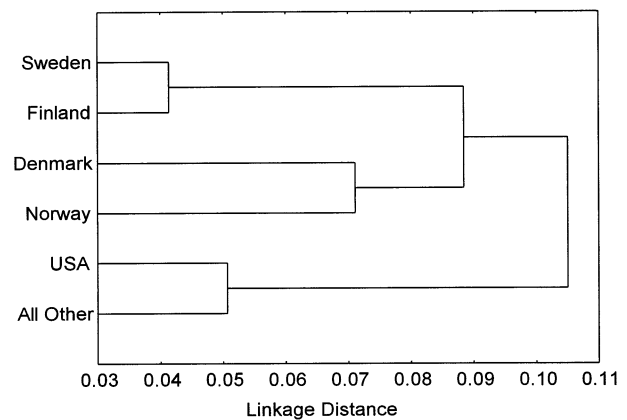


Fig. 3. Cluster analysis with single linkage and Euclidean distances for the data presented in Fig. 1 and Fig. 2.

and, as the recent analysis by Robert M. May shows, it is also alive and kicking.

I thank Peter Juslin, Magnus Persson, Pia Wennerholm, and Anders Winman for valuable comments on versions of this paper.

REFERENCES

- Adair, J. G., Paivio, A. & Ritchie, P. (1998). Psychology in Canada. *Annual Review of Psychology*, 47, 341–370.
- Gilgen, A. R. & Gilgen, C. K. (Eds.). (1987). *International handbook of psychology*. Westport, CT: Greenwood.
- Hugdahl, K. & Öhman, A. (1987). Sweden. In A. R. Gilgen & C. K. Gilgen (Eds.), *International handbook of psychology* (pp. 461–483). Westport, CT: Greenwood.
- Köppe, S. (1987). Denmark. In A. R. Gilgen & C. K. Gilgen (Eds.), *International handbook of psychology* (pp. 161–171). Westport, CT: Greenwood.
- May, R. M. (1997). The scientific wealth of nations. *Science*, 275, 793–796.
- Rönnerberg, J. (1986). Cognitive psychology in Scandinavia: Attention, memory, learning, and memory dysfunctions. *Scandinavian Journal of Psychology*, 27, 95–149.
- Ursin, H. (1987). Norway. In A. R. Gilgen & C. K. Gilgen (Eds.), *International handbook of psychology* (pp. 347–367). Westport, CT: Greenwood.
- Öhman, A. & Öhngren (Eds.) (1991). *Two faces of Swedish psychology: 1. Frontiers in perception and cognition. An evaluation of Swedish research in cognitive psychology*. Stockholm: HSFR.
- Öhman, A. & Öhngren (Eds.) (1992). *Two faces of Swedish psychology: 2. Frontiers in biological psychology. An evaluation of Swedish research in biological psychology*. Stockholm: HSFR.

Received 8 January 1999, accepted 30 March 1999