Trendalysing Social Work

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***Abstract*—This report describes an exploration of Google Trends in an attempt to determine its usefulness for social work research. Web searches on Google Trends related to social work were undertaken for the period 2007-2013. Hits related to jobs and education dominated. Emerging trends related to social media such as Facebook, Twitter and Linkedin, but also came up for words such as evidence, technology and measure that might be interpreted in terms of theories or concepts, e,g., New Public Management and managerial social work. These findings were compared with numbers of reported studies in the databases Web of Science and PsycInfo. The paper includes some practical suggestions that might improve searches; but Google Trends is a tool still in the process of development and so far its usefulness for academic social work appears to be limited.**

***Index Terms*—Google Trends, social work trends, methods, managerial ideas**

I. Introduction

Different search engines and word finder tools exist that can be used to identify web search patterns and changes in them. The most extensive such freeware is Google Trends, which includes what was previously called Google Insight for Search. Google Trends—which naturally only shows what is trending on Google—is intended to show how people look for information and what they want to know by capturing the usage pattern of keywords as well as other terms related to each search term. It is also possible to compare more than one search term to see relative popularity. However, results are only shown for search terms that receive a significant amount of traffic and there are also some restrictions related to personal integrity.

Google's own support site denotes rising searches as ones that have experienced significant growth in a given time period, with respect to the preceding time period. It is possible to start searches from year 2004 to search date. But in spite of its size and simple accessibility the use of Google Trends for scientific research so far seems to be limited to rather few research areas, such as health (particularly the much discussed flu trend studies) or business. Some recent examples of studies are Ayers et al. on mental health information [1]; Vosen and Schmidt on forecasting private consumption [2], and Choi and Varian [3], predicting economic indicators.

To our knowledge there are no previous studies concerning social work based on Google Trends. However, such studies could be interesting for several reasons, e.g. predicting the near future by showing ongoing trends that might be difficult to spot otherwise, and since it is a database free of charge and rewarding to use due to the immediate feedback it might be attractive and useful for social work students writing papers.

A. Aim of the study

The overall aim of this report is an exploration of Google Trends to see whether it might be useful in social work research.

Questions:

- What can be learned from web searches about social work through the lens of Google Trends?
- What are the strengths and weaknesses of Google Trends as a tool in academic work?

II. Methodology

A. Search strategies

Generally speaking it was hard to decide which keywords to use and hard to find taxonomic literature targeting social work alone, due to its close relation to a great number of other scientific disciplines such as social policy, sociology, psychology, (social) pedagogy and forensic social work. There are different dictionaries for social work and related terms [see e.g. 4-5]. The social work dictionary [6] includes more than 9,000 terms. Therefore, a first challenge was to find a systematic search strategy, since there are many alternatives. Both the words 'social' and 'work' are extremely frequent, so social and work combined was a first necessary delimitation. The next step was to define the search criteria. Too broad searches tend to give too much 'junk' information, while a very narrow base of phrases and professional terms may reduce the number of relevant hits. As mentioned, Google Trends is almost unexplored and there is very little literature to refer to. The study is therefore eclectic and explorative.

B. Managing searches

Test searches showed that many words appeared in both singular and plural form with sometimes different results, for example journal-journals, theory-theories or master-masters (of social work). These words could be merged using the + (plus) function in Google Trends. Some words, however, can have vastly different meanings, e.g. handicap, which is also a sports term relating to golf. If the aim is to find hits related to handicap/disability in the social work context then the misleading "golf" context must be eliminated. This can be done by using handicap – (minus) golf. Another test was a search for *world social workers day*. This day, coordinated by the International Federation of Social Workers, was introduced in 2007. Searches were concentrated to that very day and not to any other time of year (Diagram 1). Since this pattern makes sense it should support the reliability of Google Trends. However, no such search trend appeared until 2010, which might reflect the fact that it takes some time for a new 'celebration' day to be recognized, or may simp-

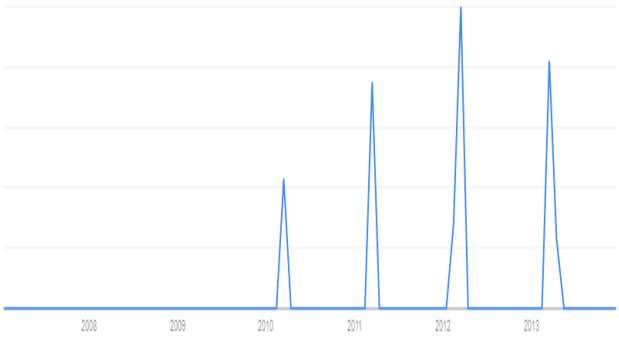

Diagram 1. World social work day (Source: Google Trends, retrieved August 13, 2014)

ly be because there were too few (relative) searches to constitute a trend.

We also found some other identified search terms relevant to social work that were hard to use and these were therefore deleted. In global searches this particularly concerned *abbreviations*. A few examples: Often people looking for a master's degree in social work just look for "MSW"; but in Polish political history MSW refers to the Ministry of Internal Affairs with long-reaching security control. Another example is looking for the International Federation of Social Workers and simply using the established acronym IFSW. However this may lead to a university institute for laser technologies (Institut für Strahlwerkzeuge) in Stuttgart, Germany. The UN Convention on the Rights of the Child is sometimes referred to as "CRC". But CRC could also refer to the regional administration in Brazil (Conselho Regional de Contabilidade), and so forth. We therefore decided not to use abbreviations.

C. *Related terms*

If there are enough searches on a term, Google Trends provides a list of as many as ten other related terms. [7] So initially the idea was to start from the search term *social work* and continue with suggested related terms, following them stepwise through new searches, hopefully to discover a cluster of relevant terms and concepts concerning social work. For example, we wanted to find out what theories related to social work would appear. The following shows the response given by Google Trends.

Top ten searches related to social work theory/theories:

Social work practice	100*
Social systems theory	85
Systems theory	85
Social learning theory	25
Ecological theory	25
System theory	25
Family theory	20
Group theory	20
Group work theory	20
Attachment theory	15

*Figures shown by Google Trends without specified numbers of searches

The results show that people wanted to know about systems theories, e.g. (Bronfenbrenner's) ecological systems theory. The responses also show that searches are singular/plural sensitive, e.g. both system theory and systems theory appear. For this period (2007-2013) people also searched for social learning theory, group theory and group work theory. But using a pathway strategy to search for "learning theory" did not give a cross-reference to social work since it is more commonly used in other sectors, particularly in education, so this led too far out and gave very limited information about social work.

As a next step, therefore, we chose to identify terms from a list of scientific journals related to social work where we surmised that the journals' names might provide appropriate keywords. But the task of going through all the titles systematically was unusually daunting due to their great number, as social work is related in one way or another to very many other fields. Social work journals could for example be combined with different population groups (children, youth, the elderly), with different social problems (disability, illness, poverty, abuse), with policy and organization (community, administration, management, NGOs), or with different countries or regions. We used only English search words.

D. *Selection of years*

Data is available from 2004. However, many searches starting from 2004 seemed a bit shaky at the beginning, sometimes showing great fluctuations, possibly depending on limited number of searches. Therefore we selected 2007 as our general starting point, when we expected the system to be more stable due to a greater number of users. We used the six-year period 2007-2013 and only full years appear. For many searches related to social work there is generally low activity in July and August as well as at the end of the year around the Christmas and New Year celebrations. This may explain why there is a dip in all diagrams presented, since December 2013 is the end point of the searches.

E. *Comparing searches*

In order to compare the results from Google Trends, the same search words also were used in the academic search bases Web of Science and PsycInfo. This was done year by year for the same period, 2007 - 2013. Searches were in English language in both databases. Some examples are included in the text; a full list is presented in an appendix.

F. *Presenting materials*

The attached diagrams (1-7) are copy pasted the way they are shown by Google. Since Google Trends does not show the numbers there are no y axis values.

III. Results

In the following are first presented some general findings about searches on 'social work'. Secondly, instead of detailing all our trials and errors, we simply decided to report some examples to illustrate stable trends, declining trends, and emerging trends.

A. *General findings*

Social work can be understood as a response to social problems, but the search trend for social work is generally a lot stronger than any trend for 'social problems' (not shown). Most likely this can be explained by the fact that people look at different specific problems such as unem-

ployment, poverty, child abuse or addiction rather than searching for social problems per se.

Some general findings are listed below:

- The most common search trends for social work in general (in the English language) were related to different aspects of *education* (degrees such as bachelor or master of social work, programs, schools of social work, specific universities), and
- *Jobs* (where to be employed, what kinds of jobs are to be had).
- Many searches related to *social work definition*, such as: Why social work? What is social work? It was also frequent with searches related to values and ethics in social work (not shown).
- Social work is naturally related to such *welfare issues* as social services, social security, social welfare, and social care.
- Social work could relate to specific *work areas*: Within specific, defined fields of social work, clinical social work and health social work seem to be commonly searched for (not shown). In this respect there seems to be a remaining interest through history since the early days of social work.
- Among social work related to *population groups*, social work with children was most commonly searched for; and among journals, gerontological social work seemed to show the strongest trend (not shown).

Some relevant search words are probably less visible because the most frequently used terms that relate to social work, such as education and jobs, are in a division of their own.

According to Google Trends these are the top ten searches related to social work 2007-2013

Social work jobs	100*
School social work	70
Social worker	45
Social security	30
Social work degree	30
Social work masters	25
Social work job	25
Social work practice	25
Social services	25
Social workers	25

*Figures shown by Google Trends without specified numbers of searches

B. Categorizing results

We parsed our findings into three groups—stable, declining and emerging trends:

Stable trends: Of these there seem to be a number. For example the search word 'social work' itself (not shown) is a rather stable search trend for the studied period. The same appears for social work theory as well as social work practice, which latter two seem to go hand in hand (Diagram 2).

Declining trends: The trend for social work journal(s) was in decline (see Diagram 3), yet at the same time there was an increase in searches related to 'social work journal impact factor'(not shown).

Emerging trends: Among the emerging trends are social work related to the new social media, e.g. social work online, social work and Facebook (from 2007), social work and Twitter (from 2009), social work and LinkedIn (from 2010) (Diagram 4). There is an increasing trend for searches related to salaries in social work, but not as much for careers (not shown).

Another emerging trend is evidence based social work (+ practice). One may tend to forget, but *evidence based social work* is a fairly new trend according to Google, emerging as a widely searched concept as late as 2008. Other searches for 'evidence based' are related to the medicine/health sector and were visible on Google Trends already from its start-up year, 2004. Another such emerging trend is *technology in social work*. (Diagram 5).

Since 'evidence' sometimes is achieved through standardized instruments (questionnaires, protocols, etc.), evidence based social work and technology may be related. Searches for technology could perhaps be a consequence of an increased interest in evidence based social work, even though Google Trends shows correlations but says nothing about causation.

This finding resulted in a new, more theoretically based search strategy since a collection of words may form a pattern. The latest mentioned words all seem to fit into a new public management (NPM) approach or even paradigm. For a discussion about interpreting the use of language related to social work and NPM see e.g.

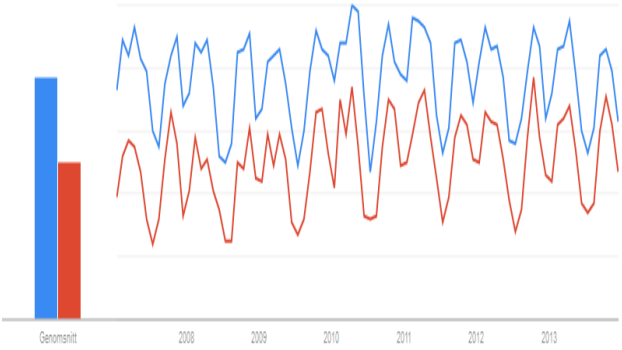

Diagram 2. Stable (and parallel) trends – social work practice (blue) and social work theory (+theories) (red) 2007-2013 (Source: Google Trends, retrieved August 13, 2014)

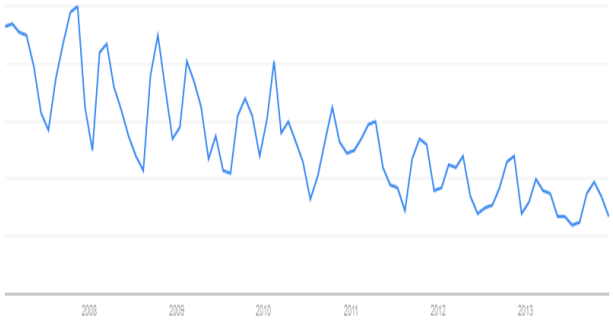

Diagram 3. Declining trend - social work journal(s) (Source: Google Trends, retrieved August 13, 2014)

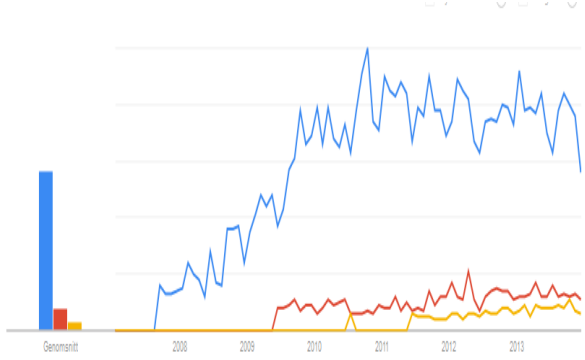

Diagram 4. Comparison of social work related to Facebook (blue), Twitter (red), and, Linkedin (yellow) 2007-2013 (Source: Google Trends, retrieved August 13, 2014)

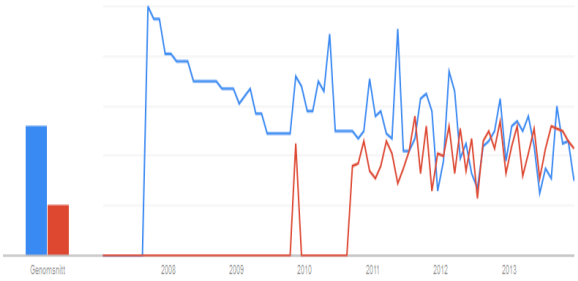

Diagram 5. New emerging trends; evidence based social work (+practice) and technology (technologies) in social work (Source: Google Trends, retrieved August 13, 2014)

Heffernan (2006). NPM is basically a number of approaches and managerial techniques inspired by market ethics that has been adopted by the public sector, which is now busy applying market mechanisms to (local) government practices. NPM puts a strong emphasis on results, which means an administration focused on performance. Markets, managers and measurement are keywords. There is no increase as seen on Google Trends for social work combined with the words new public management, so instead we tried to combine social work with a number of other words often mentioned whenever NPM is being discussed.

The words used were evidence based + practice, technology + technologies, result(s), impact, journal impact, measure/measuring social work. All these terms seem to show new trends or at least such tendencies, since the search curve is new but yearly results are a bit shaky and not straight upward. These search words were, however, not visible at all on Google Trends a few years back. See for example Diagrams 5-7.

C. *Comparing results*

As a means of improving validity, or at least of finding some comparative information, the same search words as presented in the diagrams were used in the academic search databases Web of Science and PsycInfo English language searches were made year by year from 2007 to 2013. Table I shows the results for evidence based social work and are an example of search findings (results in full are shown in the Appendix, Table II).

As the table shows, there is an increase in findings about evidence based social work in both databases throughout the whole period studied. Therefore, it seems reasonable to believe that these results support the findings on Google Trends. Google Trends could perhaps show ongoing trends whereas the other data bases used could subsequently confirm the scientific interest.

TABLE I.
NUMBER OF SEARCH RESULTS FOR EVIDENCE BASED SOCIAL WORK PER YEAR 2007 - 2013 IN WEB OF SCIENCE (LIMITATIONS: YEAR AND ENGLISH LANGUAGE) AND PSYCINFO (LIMITATIONS: YEAR, ENGLISH LANGUAGE, PEER REVIEWED JOURNALS).

year	Web of Science	PsycInfo
2007	182	267
2008	221	312
2009	238	311
2010	296	362
2011	321	383
2012	365	428
2013	395	542

IV. DISCUSSION – UNDERSTANDING TRENDS

This paper is a descriptive trend analysis that uses Google Trends to identify and analyze internet search trends related to social work. The most common searches are identified as those relating to educational degrees and universities, job type, the meaning of the term, social welfare programs, social work practice areas, and social work practice with population groups. However, at its present stage Google Trends does not report the relative frequency of those terms, which is why no totals are given. A clear disappointment is that it has not been possible to have any of our conclusions verified by Google, since Google does not publish phone numbers, does not have any contact persons, and does not answer any mails. We tried to make use of the information from Google Trends anyhow and parsed the trends we found as stable, declining, and emerging.

A. *Expected trends*

The most expected trend is the increase in social work searches related to the new social media Facebook, Twitter and Linkedin. Google Trends clearly shows when these media forms started to grow. Perhaps more interesting are the findings of increasing searches for evidence based social work, technology in social work, impact factor for journals, which might not just give some empirical search trends, but possibly indicate a new 'managerialist' view of social work, which could be further researched.

B. *Unexpected trends*

According to Google Trends there was a *decline in searches for social work journal(s)* in the period 2007-2013. In a time of growing academic interest in social work, are these results reasonable? Or was there in fact no such decline?

Today, there is an obvious risk of misinterpretation. An upward trend curve most likely reflects an increasing number of searches. However, a declining curve does not necessarily mean a decrease in the number of searches. According to Google support sites [9], "Google Trends analyzes a portion of worldwide Google web searches from all Google domains to compute how many searches have been done for the terms you've entered, relative to the total number of searches done on Google over time." For example, in an article published by the Lancet Schizophrenia Group the author found that there was a heavy

decline in the searches related to the Cochrane Library and to four reputed medical journals. "….decline by 75 percent" [10]. However, this conclusion could not be drawn from looking at Google Trends alone, which only shows the number of searches *in relation* to the total number of searches. For example, searches on "Cochrane library" on Google Scholar shows an *increasing* number every single year from 2004 to 2012. (Estimated search number results in the English language, excluding citation and patent, increased from 11,200 in 2004 to 28,800 in 2012.) Other search words will most likely increase a lot more as the number of users on Google search increases. For example, in 2012 it was hard for *Social Work Journal* as well as *Cochrane library* as search words to compete with e.g. *London Olympics* or artist *Whitney Houston* (who passed away in 2012). In fact there is an increase in the yearly number of studies related to social work journal on both Web of Science and Psycinfo since 2007 (see Appendix).

Using Google Sweden as an example, in 2012 there were around 30-35 million Google searches per day, an increase of 20 percent since 2011 [11].

To our understanding this means that there has to be the same increase in searches just to keep a stable trend. For example, to keep a trend in Sweden stable there must be a 20 per cent increase in the number of searches.

However, this lack of findings might also illustrate a more general problem with requirements for search volumes and comparing search words. What is a strong trend and what a weak one? For example, going back to social work related to Facebook, Twitter and Linkedin, the trends come out nicely when scrutinized one by one. But comparing these trends in a joint diagram shows that the amount of searches on Facebook is so much larger than on the others, which makes Twitter and Linkedin look quite small (Diagram 4). This might be one reason why it could be hard to spot new terms, since terms related to education and employment are very dominating. At the same time, this illustrates the problems of interpreting trends without having descriptive statistics as background information.

C. *Some suggestions for interpreting and improving searches*

Among lessons learned for interpreting and improving searches:

- The initial search period chosen may be crucial for results.
- Google Trends shows correlations, but not causation
- Google Trends shows trends, but not volumes, which makes interpretation more difficult
- Sudden gaps could indicate small search volumes rather than any real decline in a trend
- Broad searches may give too much "junk" information, while more narrow search phrases such as professional terms may reduce the number of relevant hits.

Therefore:

- Combine search terms such as master, masters; journal, journals for more statistical power
- Clean searches (for example deleting "golf" from the term handicap if you look for terms related to disabilities)
- Avoid abbreviations

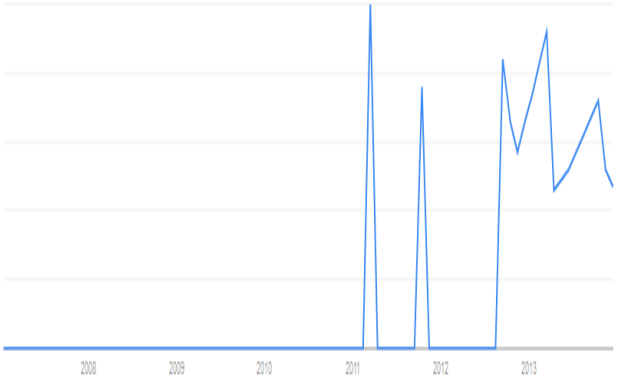

Diagram 6. Search words measure social work + measuring social work + social work measure + social work measuring (Source: Google Trends, retrieved August 13, 2014)

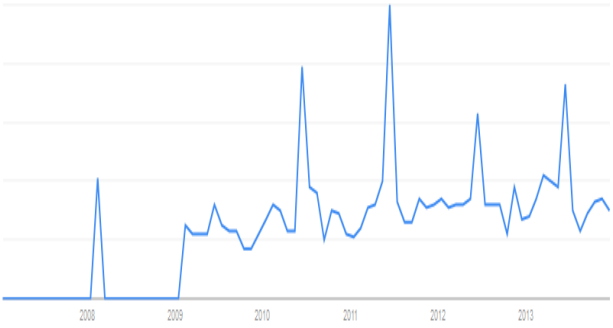

Diagram 7. Social work result(s) 2007-2013 (Source: Google Trends, retrieved August 13, 2014)

D. *Methodological reflections on comparing results*

We started from the questions of what could be learned about social work through the lenses of Google Trends and of the strengths and weakness of using the tool Google Trends in social work research. Google Trends shows rather clearly when a certain word starts to be highlighted which of course could be quite interesting (e.g. Diagrams 1 and 4). Google Trends can be useful, as previously shown by Google's 'flagship example' about flu trends [see e.g. 12-14]. An increasing number of searches on flu related illness might show a forthcoming larger flu outbreak. Interestingly enough there is also a study about flu trends in China even though Google is not at all as dominating a search engine in China as in many other countries [15]. But to use Google Trends in social work research is something different as there is not the same "news value" to social work trends as the flu searches. (It is probably hard to spot a rapid "outbreak" of phenomena related to (scientific) social work.)

Google Trends is a tool still in the process of development. So how useful might it be for scientific studies in social work? The most obvious objection to using Google Trends is the lack of provided search numbers, which reduces the chances of finding out what people actually are looking for about social work. Using Google Trends is rather akin to sticking a wet finger in the air to find out how the wind blows. The complementary information from Web of Science and PsycInfo could verify the academic interest for different search words. Most likely this

would also require a content analysis of articles as well, as only the number of documents gives limited information.

For the future there seem to be different search strategy options. One would be to do a more systematic explorative study, perhaps using a data mining approach with more computer support. Web data mining could be used to find unsuspected relationships and to summarize the data in novel ways. Of course results need to be considered carefully as the risk is that the associations found are random and not causal.

Another way around would be to start from a given concept (compare the discussion about NPM above), make operationalization and see if the same trends appear for the most important key words related to the concept.

V. Conclusions

Most web searches on social work as experienced through Google Trends relate to jobs and education. Since Google Trends are based on relative number of searches, a declining trend does not necessarily mean a declining number of searches if there is an increase in the total number of searches. Emerging trends 2007-2013 relate to new social media. Emerging trends were also found when combining social work with some theoretically chosen terms/concepts such as evidence, technology, and measure, which might indicate a growing interest in managerialist ideas in social work. Google Trends is still in the process of development and the scientific use of this tool in social work research and education at present seems to be limited.

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APPENDIX

TABLE II.
NUMBER OF SEARCH RESULTS PER YEAR 2007 - 2013 IN WEB OF SCIENCE (LIMITATIONS: YEAR AND ENGLISH LANGUAGE) AND PSYCINFO (LIMITATIONS: YEAR, ENGLISH LANGUAGE, PEER REVIEWED JOURNALS).

Search words (Jan 1st to Dec 31st each year)	**year**	**Web of science (WS)**	**PsycInfo (PI) peer reviewed articles**
Social work	2007	5118	6034
	2008	6069	6336
	2009	7386	7013
	2010	7861	7475
	2011	8544	8054
	2012	9283	8741
	2013	9298	9299
Social work theor* (WS) Social work theory (PI)	2007	1019	922
	2008	1281	988
	2009	1535	1021
	2010	1698	1170
	2011	1876	1230
	2012	1943	1266
	2013	2014	1432
Social work practice	2007	1034	1843
	2008	1170	1860
	2009	1462	2109
	2010	1646	2184
	2011	1772	2317
	2012	1874	2519
	2013	1886	2630
Social work journal*	2007	84	6034
	2008	113	6336
	2009	166	7013
	2010	171	7475
	2011	183	8054
	2012	186	8741
	2013	165	9299
Social work Facebook	2007	4	0
	2008	6	2
	2009	20	5
	2010	38	8
	2011	54	10
	2012	86	34
	2013	92	32
Social work Twitter	2007	0	0
	2008	0	0
	2009	7	1
	2010	25	1
	2011	35	2
	2012	84	9
	2013	80	19
Social work Linkedin	2007	0	0
	2008	0	0
	2009	5	0
	2010	2	0
	2011	0	0
	2012	8	2
	2013	10	2
Evidence based social work	2007	182	267
	2008	221	312
	2009	238	311
	2010	296	362
	2011	321	383
	2012	365	428
	2013	395	542
Social work technolog* (WS) Social work technology (PI)	2007	458	326
	2008	493	378
	2009	656	382
	2010	723	422
	2011	832	518
	2012	843	542
	2013	752	647
Social work measur*(WS) Social work measure (PI)	2007	661	627
	2008	719	624
	2009	882	692
	2010	942	755
	2011	1122	956
	2012	1226	1042
	2013	1282	1363
Social work result(s)	2007	1744	1707
	2008	1973	1973
	2009	2472	2168
	2010	2603	2309
	2011	3013	2599
	2012	3360	2999
	2013	3421	3317

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