



Using social networking sites, blogs and online news contents in the agriculture research: a citation analysis

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Abstract:

Whilst there is some evidence that different types of social networking sites are increasingly used by scholars for academic activities, it is not known how these emerging web contents are being used in the agriculture research. In particular, this study investigates the extent to which major social networking sites are formally cited in academic publications in agriculture. We extracted the URL citations to the range of social networking sites including Wikipedia, blogs, document and video sharing sites, general social networks and online news contents from academic publications indexed by Scopus. We found 1,985 Scopus publications cited at least one of the selected social networking sites and there was an overall stable upward trend in using most of these sites in the published agriculture researches. Wikipedia (45%), online news contents (25%) and blogs (19%) were more commonly cited in agriculture publications than general social networks (less than 1%) and document and video sharing sites (7% and 3% respectively). Finally, it seems that social networking sites are being used by a small but increasing number of academics to support research and scholarly discussions.

Keywords: social networking sites; citation analysis; research communication; agriculture

Introduction

The partial shift of academic contents to the Web has been a motivating factor for a range of studies to assess online scholarly communication (e.g., Fry, 2004) and in particular attempts have been taken to assess the role of non-standard academic outputs in the research communication such as PowerPoint presentations, course syllabuses, blogs (see Kousha, Thelwall, & Rezaie, 2010b) and online images (Kousha, Thelwall, & Rezaie, 2010a).

Social networking sites (e.g., Blogs, Facebook, YouTube and Twitter) are web technologies which facilitate communications, discussion and sharing of different types of documents, videos or images. However, it is not known how these sites are formally used in research communication. Several studies have discussed the role of social networking sites in research and academic activities (e.g., Rambe, 2011) such as Wikipedia (e.g., Head & Eisenberg, 2010; Khoury, 2009), blogs (Bouwma-Gearhart & Bess 2012; Duda & Garrett, 2008; El Tantawi, 2010), YouTube (Kousha, Thelwall & Abdoli, in press, 2012), Facebook (e.g., Amerson, 2011) and Twitter (Ovadia, 2009). A small number of papers also discussed the application of social networking sites as a communication platform in agriculture and other related areas such as using forestry-related Wikipedia articles (Radtke & Munsell, 2010), the Twitter activity of the Ministry for Food, Agriculture, Forestry and Fisheries in Korea to disseminate agro-forestry information (Cho & Park, 2012) and potential uses of Web 2.0 in agricultural digital libraries to improve information services (Baoji et al., 2007).

Nevertheless, there seem to be no investigation on how different social networking sites are formally cited in published academic research and in particular in agriculture. The objective of this investigation is to explore how different types of social networking sites are formally cited in academic publications in the field of agriculture indexed by Scopus and to examine which social networking sites are more commonly used in research communication which can provide insights into the citation behavior of agriculture researchers.

Research questions

The aim of this investigation is to examine how different types of social networking sites (SNS) are cited in agriculture publications indexed by Scopus. The study covers a range of social networking sites and news contents including 1) Wikipedia 2) major blogs 3) video and image

sharing sites 4) document sharing sites 5) general social networking websites and 6) major online news contents.

1. How frequently are common social networking sites cited in academic agriculture publications? And is there a significant upward growth in citation rate?
2. What types of social networking sites are commonly cited in agriculture publications?

Methods

Selection of Social networking sites and news related contents

As the first study of its kind, we selected a range of different social networking sites and online news contents:

- *Wikipedia*: Wikipedia is a free online collaborative encyclopaedia which contains over 21 million articles in various subject areas (Wikipedia, 2012). These articles can potentially be used for research communication. However, not much is known about the extent of citations to Wikipedia articles from agriculture research.
- *Blogs*: blogs or weblogs are the fastest and the easiest method for online publishing, where people (or bloggers) can write about different topics or leave messages and comments. We selected 63 major blogs or blogs software from different lists (e.g., list of social networking websites, 2012) and assessed how these blogs may be cited or used by agriculture research.
- *Video and image sharing sites*: Online videos or images may be useful for scholarly communication within agriculture. Hence we selected four main video and image sharing sites including youtube.com, video.google.com, video.yahoo.com, ted.com and flickr.com.
- *General social networks sites (SNS)*: Facebook, MySpace, Twitter and LinkedIn are among the most popular social networking sites which connect people with friends and others people. However, there increasing number of institutions creating their own pages in these social networking sites such as USDA (www.facebook.com/USDA) which might be useful for research communication.
- *Document sharing sites (DSS)*: Document sharing sites specifically allow users to share different types of documents such as PDF, DOC, PPT or PS. We selected six

major document sharing sites including Slideshare.net, Mendeley.com, Scribd.com, Dropbox.com, DocStoc.com and Delicious.com to examine how documents uploaded in these sites were formally cited by agriculture publications.

- *Online news contents*: Every day millions of people around the world listen to or watch the news and feature stories broadcasting by the major news agencies such as BBC, CNN and Reuters. These major news agencies not only disseminate daily political and economical news, but also are reliable and up-to-date sources for tracking science, technology, health, entertainment features and analysis. We selected four major online news agencies including BBC, CNN, Reuters and The Associated Press and assessed how news related contents were used in the agriculture research.

Scopus Cited Reference Search for SNS and News Contents

We used Scopus citation database to extract citations to blogs, SNS, DSS, Wikipedia, news contents and other sites (see above) from academic publications in the field of agriculture. We searched for the selected URLs from SNS and news contents using truncation (e.g. blogspot.com*, dropbox.com*, wikipedia.org*, bbc.com*) in the reference section of publications indexed by Scopus. We then limited our search to the subject category “Agricultural and Biological Sciences” as the only related subject area for the purpose of the study in Scopus. Note that this method also retrieves general citations to SNS and other selected websites as a web phenomenon (e.g., www.facebook.com, www.wikipedia.org or twitter.com). Hence, it was necessary to omit such matches to present better understating of citations to the different web contents rather than the main websites. We exported all data from Scopus in Excel format on 2ndth April 2012 and automatically extracted the valid URL citations to the selected sites (omitting citations to general URLs) through Webometric Analyst’s programme (lexiurl.wlv.ac.uk) which was devised for this purpose. Consequently, we had valid citations from different sources of the selected sites cited by agriculture and biological sciences indexed by Scopus.

Results

Figure 1 shows that there has been a constant upward trend in citing most selected social networking sites. Most importantly, the annual increase is more obvious for citations to Wikipedia, Blogs and document sharing sites, although the absolute number of citing documents is still very low. The growth trend for Wikipedia and blogs and document sharing sites are almost linear, whereas there is a steady citation trend to news contents since 2001. The increase in the total number of citations to videos or images being 4, 10, 17 and 30 in 2008, 2009, 2010 and 2011 respectively indicating that increasingly but low number of visual contents is being used for research communication in agriculture.

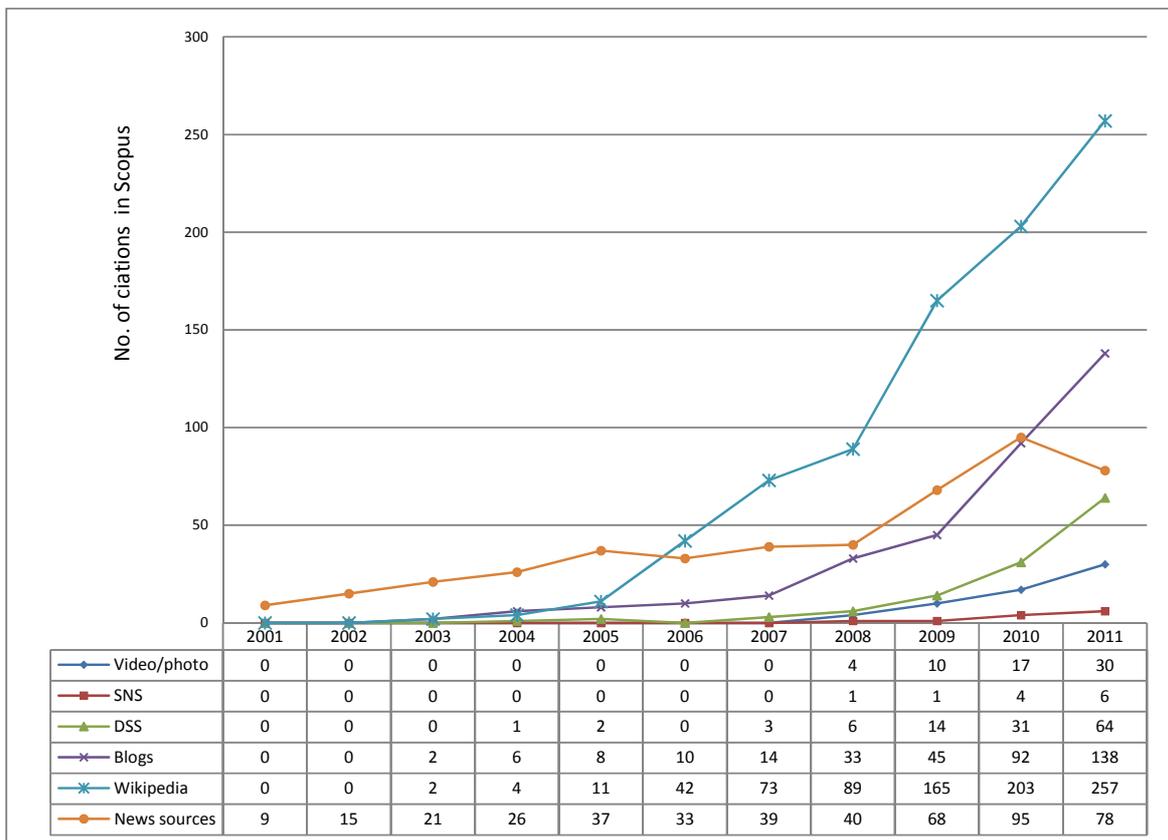


Figure 1. The number of academic publications citing SNS and other websites over the years in agriculture and biological sciences

Table 1 reports types of citing sources to SNS and other selected websites in the investigation. It shows that 1,985 Scopus publications cited at least one SNS and online news contents in their reference lists including journal articles (74%), reviews (14.4%), conference papers (5%), and other types of publications (6.15%) such as editorials, letters, notes and short surveys.

Table 1. Types of document citing sources to SNS and other websites in agriculture and biological sciences

Document type	Article	Review	Conference	Other (editorials, letters, notes)	Total
No. (%)	1479 (74.4%)	286 (14.4%)	99 (5%)	121 (6.1%)	1985 (100%)

Table 2 reports number and percentage for different types of SNS, blogs, video and document sharing sites. It shows that 1,985 citations to the selected web contents were extracted from cited references of the agriculture and biological sciences indexed by Scopus. Most notably, Table 2 shows that Wikipedia (45%), online news (25%) and blog posts (19%) were more commonly cited by academic publications, whereas there are relatively a small number of citations to document (7%), video/image sharing sites (3%) and general social networking sites (less than 1%).

Table 2. Statistics for different types of web contents cited by publications in agriculture and biological sciences

Web content	Wikipedia	Online news	Blogs	DDC	video/ image sharing	General SNS	Total
No. (%)	887 (44.7%)	493 (24.8%)	381 (19.2%)	141 (7.1%)	67 (3.4%)	16 (0.8%)	1,985 (100%)

Table 3 gives more details of the percentages of different cited web contents selected for the purpose of the study. Most notably it shows that about half and 70% of the citations to document and video/image sharing sites were created to Scribd.com and YouTube.com respectively.

Table 3. Citations to the major document or video/image sharing sites form agriculture and biological sciences publication

Document Sharing Sites	Scribd	DocStoc	Slideshare	Mendeley	Delicious	Dropbox	Total
No. (%)	71 (50.4%)	32 (22.7%)	15 (10.6%)	10 (7.1%)	9 (6.4%)	4 (2.8%)	141 (100%)
Video/image Sharing Sites	YouTube	Flickr	Ted.com	video.google	video.yahoo	Total	
No. (%)	47 (70.1%)	10 (14.9)	7 (10.4%)	3 (4.5)	0 (0%)	67 (100%)	

Discussion and Conclusions

In answer to the first research question, we found a stable upward trend in citing different types social networking sites within academic publications in agriculture and biological sciences. Nevertheless, the absolute numbers of citations to the selected websites is relatively low, especially when we calculate proportion of cited websites per Scopus publications (2005-2011) in agriculture and biological sciences ($1,985/416,340=0.004$). However, it is not known whether disciplinary difference is important factor in citing SNS. Hence, follow-up investigation may reveal aspect of using SNS across sciences, social sciences, medicine and arts and humanities.

In answer to the second research question, we found that Wikipedia (45%), online news contents (25%) and blog posts (19%) are more commonly cited in agriculture publications than general social networking sites (less than 1%) which mostly connects people (e.g., Facebook, twitter and MySpace) and document (7%) or video sharing sites (3%). One explanation is that more scientific or scholarly-related contents are available through Wikipedia, news agencies (e.g., science news in BBC, CNN and Reuters) and blogs (e.g., agriculture blogs). However, further qualitative studies into motivations for citing SNS may give a better understanding of using SNS in agriculture research.

Finally, results suggest that whilst many scholars in agriculture did not directly cite SNS to support their academic publications, they may increasingly use SNS for social activism or informal scholarly communication such as conference lectures and teaching. This supports a

previous study that most university students and academics use SNS such as Facebook more for “social uses (to stay in touch with friends and family, to share / tag photos, to engage in social activism, volunteering etc.) and less for academic purposes, even if they take part in discussions about their assignments, lectures, study notes or share information about research resources etc” (Grosseck, Bran & Tiru, 2011, p. 1425).

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