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ONE: THE ONLINE VISIBILITY OF SOUTH AFRICAN KNOWLEDGE: SEARCHING FOR POVERTY ALLEVIATION

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ABSTRACT: This paper reports on an investigation into the online visibility of work undertaken in South Africa in the field of poverty alleviation. An experiment with Google searches was undertaken, motivated by concerns about the visibility of South African research and development work, particularly in a context where social inequality is extreme and poverty such a critical issue. Aware that much attention – through research and the practice of development work – is being paid to poverty alleviation[1], the authors set out to examine whether that work could be found easily, and what the nature of the search results would be. Significant sums of public money are invested in research, which should result in the production and dissemination of locally generated knowledge as a public good grounded in local realities. A great deal of national and international funding is also spent. Thus, research published online should inform and reflect on national and regional development practice, while contributing perspectives from the South to the global corpus of poverty research. Research to understand poverty and inform the design and targeting of poverty alleviation programmes needs to be freely available and actively shared in order for it to accumulate value. In this regard it is argued that there are exponentially beneficial linkages between research, scholarly publication and social development, which originate with local knowledge production and are amplified by the availability and discoverability of that research. Availability and discoverability add breadth and depth to the potential use, value and impact of the knowledge produced.

INTRODUCTION: THE RESEARCHER'S DILEMMA

Structural and chronic poverty are acknowledged to be at the heart of South Africa's problems (Du Toit, 2005), especially as it is a dramatically unequal society (Liebrandt, Woolard, Finne & Argent, 2010). The country has the most unequal income distribution in the world (Hodgson, 2012), with 68.1% of income accruing to the richest 20% and the poorest 10% receiving less than 0.57% (Development Indicators, 2011). Efforts to address poverty and its associated inequalities are an extremely serious matter for government. All nine provinces have poverty alleviation programmes, and a South African Government War on Poverty Campaign was initiated in 2008 (Mbeki, 2008). The non-government sector is very active in this area: there are over 85 000 non-profit organisations (NPOs) registered with the Department of Social Development (Mokomele-Mothibi, 2012), many of which are actively addressing a range of issues integral to poverty alleviation. One database, CharitySA, lists 139 charities (August 2012) dealing with poverty alleviation (see http://www.charitysa.co.za/) – there are, of course, many more.

Access to knowledge about the scholarly research and development activity on poverty alleviation being undertaken in the country is essential to numerous stakeholders. Organisations and individuals addressing poverty alleviation both within the country and beyond its borders need access to the latest research findings published in a variety of forms, including journal articles and conference proceedings, as well as non-traditional outputs such as commissioned reports and policy documents, popular outputs such as newspaper interviews, magazine articles and brochures and online media outputs such as blogs and video talks. Such access would be enlightening about work being done in this field and would provide opportunities to collaborate as well as demonstrate best practices to be emulated.

It is important that work conducted in local conditions is made publicly available so that researchers working in similar socio-economic conditions regionally and in the global South can share knowledge. Locally produced knowledge should be easily accessible to the community within which it is generated. It has been a particular challenge to access information produced in the Southern African region within the region itself. A study by Abrahams, Burke, Gray and Rens (2008) found that only 46% of survey respondents agreed that research output is accessible. Furthermore, only 10% did so without qualification while the remaining 90% said that ready accessibility is hampered by a number of constraints including the lack of institutional capacity to put content online (Abrahams et al, 2008: p. 28). This latter point is especially pertinent in a broader global context where open access is becoming a mainstream trend and scholarly content is more freely available online.

1 The authors are aware that there are different schools of thought and discourses in this area, including poverty alleviation, poverty reduction, poverty eradication, poverty and inequality and so on. At the same time, searchers are unlikely to use the exact terminology employed by writers and when work is described online it needs keywords to include the whole gamut of possible terminology. Also, for the purposes of this experiment only one phrase could be used.

If local content is not available online, it may lead, as Chan, Kirsop and Arunachalam (2011: p. 1) suggest, to "the misguided notion that little, if any, research of substance is generated in the global South, and that the needs of researchers in poor[er] countries are therefore met solely by information donation from the North".

The production and dissemination of research on poverty and related development issues is part of a complex web of global knowledge production and dissemination, characterised by inequalities, uneven participation and northern-dominated power relations. This is especially the case for South African university researchers who are faced with dual imperatives: to undertake and make available research that addresses local and context-specific concerns, while at the same time publishing in "high-impact" international journals that are unlikely to have an interest in these very issues. As the editor of one of these journals, *The Lancet*, admitted, "We editors seek a global status for our journals, but we shut out the experiences and practices of those living in poverty by our (unconscious) neglect. One group is advantaged while the other is marginalised" (Horton, 2003). Indeed, a study of four high-impact international social science journals found that these journals attracted authors from all over the world, but their empirical sites of study were largely in the US and Europe (Hamman, 2012). The South African government expects the higher education sector to take poverty and related development issues seriously, as evident in policy statements by government ministers, in university mission statements and in the social discourse concerning the role of universities in emerging economies (Gray, Trotter & Willmers, 2012), while for research financing purposes, it requires researchers to publish in high-impact international journals. This leaves researchers with the dilemma so succinctly summed up by Nyamnjoh (2010, p. 69) when he observed that "African scholars face a critical choice between sacrificing relevance for recognition, or recognition for relevance".

EXCAVATING ONLINE: THE GOOGLE SEARCH STUDY

The study of four identical Google searches on "poverty alleviation" was undertaken by the researchers during 2012, working with 20 individuals drawn from all continents. These searches were conducted through Google and Google Scholar, with one search including the term "South Africa" and the other search not specifying the term South Africa. The investigation looked only at the first screen of the search results.

The overarching interest of the study was in the visibility of South African resources (both work and outputs) in the search results. Specifically, the researchers wanted to find out whether South African research was visible when the term "South Africa" was not included. When the term "South Africa" was included or excluded, it would be possible to analyse:

- where the results came from, and the extent to which South African results appeared in the searches;
- which South African organisations, individuals or articles appeared, and what relevance this might have;
- the types of results, including the percentage of full-text results;
- the rankings of the results, and similarities and differences between the rankings;
- the similarities and differences between Google and Google Scholar results.

WHY GOOGLE SEARCHES?

There is substantial evidence of the use of search engines on the Internet as a widely used, indeed, primary mechanism for finding information (Waller, 2011), and Google's dominance among search engines is well established (Google has 80.9% of market share, according to StatOwl)[2]. As early as 2007, studies showed the prevalence of Google in academic use of the Internet across a range of disciplines (Nicholas, 2007). A more recent survey of those working in poverty alleviation in South Africa (mostly NGOs and government) reported that a general Internet search was the most common way to find poverty research, with 77% of respondents reporting doing so (De Satgé, 2012).

The researchers anticipated that search results obtained in this investigation would not be identical to each other, as they would be shaped by the Google search algorithm, particularly pertaining to personal history searches and geolocations, hence the decision for participants to be geographically dispersed. The researchers expected substantial overlap in the results and were keen to identify the similarities and differences in the search results.

The Google search algorithm is designed to rate web pages based on the number and importance of links that point to them, or as Google itself describes it, "to use the collective intelligence of the Web itself to determine which sites were more relevant" (Cutts, 2012). As explained by Levy (2010),

> first Google crawls the Web to collect the contents of every accessible site. This data is broken down into an index … a way of finding any page based on its content. Every time a user types a query, the index is combed for relevant pages, returning a list that commonly numbers in the hundreds of thousands, or millions.

2 16 August 2012, http://www.statowl.com/search_engine_market_share.php

However, Google will change rankings and search results based on a user's Internet Protocol (IP) address or location, web history and recent searches (Brinkmann, 2009). Through the IP address, the geolocation APIs (application programming interfaces) give a web application the ability to obtain the geographical position of a user, and usually automatically provide country, region, city, postal / zip code, latitude, longitude and time zone (Jimenez & Santill, 2011).

Personalisation, the default in Google searches since 2009, is an important dimension of the algorithm and, together with geolocations, central to why results vary, with variances between results increasing as users deepen their profiles over time. As Simpson (2012) explains, there are two types of personalisation: individual personalisation will prioritise search results from sites a user has previously visited, while profile personalisation will match users with other users whose profiles and browsing histories are similar and connect a user to those sites.

The ranking of search results by Google is complex and receives ongoing attention and revision by Google, with PageRank, geolocation and personalisation being only three of the considerations. Other considerations include keywords in the web address, age of the page, and the freshness of information on the site. It is of note that the 2011 adjustment to the algorithm brought into play social networking recommendations, including Google's +1 and Facebook Likes (Aubuchon, 2012).

The researchers were also interested in Google Scholar, because this is a distinct, albeit overlapping, dataset from Google. As Walter (2011 p. 972) notes,

> Google Scholar gets its bibliographic records from three sources: (1) freely available web documents that 'look scholarly' in their content or format; (2) articles or documents supplied by Google Scholar's partner agencies: journal publishers, scholarly societies, database vendors, and academic institutions; (3) citations extracted from the reference lists of previously indexed documents.

Only records of the first type can be found through the regular Google interface.

The online searches were undertaken in the week of 16 May 2012. Respondents were identified through professional networks in the educational technology and development spheres, the aim being to obtain a spread of searches across every continent. They were located in South Africa, Australia, Brazil, Canada, Chile, El Salvador, France, India, Kenya, Lebanon, Malaysia, Nigeria, Taiwan, the United Kingdom and US. Two of the three respondents in South Africa were specifically selected for being outside of the main cities, in order to vary geolocation effect on the searches. Nine participants were from the academic sector, eight from the development sector and three from the information technology sector.

Participants were briefed on search process and then asked to submit results only from the first screen that came up after each search. While this was partly to reduce the onerous nature of the task, it was specifically because the researchers are aware that research has found that most Internet searchers do not go past the first screen. Simpson (2012) quotes Beitzel's (2007) extensive study which found that 79% of searchers do not go beyond the first results page, and King (2008) who provides corroboration for this finding.

Due to differing screen sizes, participants had different numbers of results, with an average of almost nine (8.96) search results over all searches. The lowest average of search results over all search topics was five and the highest was 10.75. The experiment had inevitable limitations. The researchers were not able to control and standardise each searcher's search conditions, and were therefore in authentic conditions rather than in artificially controlled ones. It would be useful to replicate the searches under more tightly constrained conditions.

FINDINGS: THE VISIBILITY OF SOUTH AFRICAN POVERTY RESEARCH ONLINE

The investigation sought to understand which countries produced research on poverty alleviation, which countries were reported on in the research, how localised the search results were, and what the subject matter of the results was. It further sought to understand how South Africa was represented in the search results.

SEARCH: POVERTY ALLEVIATION

The results of all the Google searches on "poverty alleviation" yielded zero responses for South Africa, illustrating a lack of country visibility. The three South African respondents' searches yielded no localised or country-specific results; rather, their results had hits for the following countries: Tanzania, Guyana, Pakistan, Nepal, India, China and The United Kingdom.

The Google Search for "poverty alleviation" yielded the most localised responses from Nigeria (83% of the Nigerian searcher's results); India (60% of the Indian searcher's results); Canada (40% of the Canadian searcher's results); and Malaysia (44% of the Malaysian searcher's results). It is difficult to ascertain the reasons for this. It may have been because the respondents had a variety of roles (including academic, administrator, lawyer and IT) and so their search histories would have differed substantially given the personalisation aspect of the Google search algorithm. While Google defaults to the country-specific version of the search engine (Simpson, 2012), it cannot be assumed that this is the reason that these searches were so local in their results while others were not.

The Google Scholar search for "poverty alleviation" produced no particular country specificity in terms of either where the results came from or which countries were featured. A range of countries appeared from every continent except South America (which most likely reflects the language of the search). African countries which appeared were Uganda, Zimbabwe, Cameroon and South Africa; while other countries were Indonesia, US, the United Kingdom, Bangladesh and India.

It is interesting that the Google Scholar search included a South African result while the Google search did not. Given Google Scholar's scholarly focus, the one local result was a journal article which only appeared once, interestingly in an open access journal. This article "Poverty: perspectives and educational implications", published in the *South African Journal of Education*, was located third out of ten in the search results for the academic in France. It is also of note because the French search results were the most distinctive and differentiated from the results from all other countries. As mentioned earlier, personalisation is a key aspect of the Google algorithm and this searcher was quite distinct, as an IT professional and a French speaker (although searching in English).

SEARCH: POVERTY ALLEVIATION SOUTH AFRICA

The Google search for "poverty alleviation South Africa" yielded significant visibility as all websites represented in search results for all respondents were either located in South Africa or contained South African content. The content was generated by five countries: South Africa (with 77% of the results) followed by Germany, the United Kingdom, France and Canada. Of the total of 173 hits for "poverty alleviation South Africa", 132 contained South Africa in the title of the article concerned.

All the Google Scholar "poverty alleviation South Africa" search results contain content from or about South Africa, with 80% of the results appearing to have been published within South Africa itself, while the other countries which appeared (ie those that had content about South Africa) were Australia, the United Kingdom, the Philippines and Germany. All articles represented had South Africa in the title of the article/book/citation. This is relevant as it shows how keywords in the title itself are more likely to be found (also a factor in the Google algorithm), so accurate descriptive titles are more useful (in terms of discoverability) than obscure ones.

Of the South African results, 16 were from universities, all of which were full text. There were five results from Rhodes University (three of which were from the Rhodes institutional repository), four from the University of Witwatersrand, three from the University of Pretoria, one from the University of Natal, one from the University of South Africa, one from the University of the Western Cape and one from the University of Cape Town. The 24% of non-university organisations included a research council (HSRC), three state structures and two civil society organisations (SALGA and Institute for Democracy in South Africa).

In terms of where the hits came from, the countries were Indonesia, the US, the United Kingdom, Bangladesh, India, Uganda, Zimbabwe, Cameroon and South Africa. Without further investigation, it is not possible to ascertain the exact reason for this. On one hand the high percentage of results with "South Africa" in the title from these countries would suggest that there is great deal of work being undertaken on poverty alleviation in those four "developed" countries. On the other hand, this might simply show that the publishers/producers of this content are especially proficient at ensuring that their content is online and discoverable there.

The results from South Africa included four articles from university institutional repositories and websites, including three from Rhodes University and one from University of Cape Town. Of the top five results, two of the five were listed in the Rhodes University institutional repository (both appeared in 16 of the 20 participants' search results). This is of note, given the important role that repositories have come to play in the open access space.

RESPONSE SCOPE AND TYPES OF RESULTS

FULL TEXT

Of the total number of unique responses, 48% were full-text responses, defined as a document that can be accessed in full directly from a site, or may require a registration or log-in ID, but does not require payment or a subscription. This includes academic journal articles as well as other scholarly outputs (for example, government documents, research reports), PowerPoint presentations, and journalistic articles. It is reasonable to assume that a searcher will focus their attention on those results which are immediately available as full text rather than try to gain access to the text by other means. Full-text results are clearly more convenient as they are simple click-throughs to the text itself, rather than references that require follow-up elsewhere. That convenience is a major motivator for researchers is borne out by research: using data from two multi-year user studies. Connaway, Dickey and Radford (2011) found that convenience is a situational criterion in people's choices and actions during all stages of the information-seeking process. They noted that "the concept of convenience can include their choice of an information source, their satisfaction with the source and its ease of use, and their time horizon in information seeking" (Connaway et al, 2011). While they found that the centrality of convenience was especially prevalent among the younger subjects, it held across all demographic categories – age, gender and academic role (Connaway et al, 2011).

SELF-ARCHIVING

The Google Scholar search "poverty alleviation South Africa" results included 18 articles, as well as two books. Of the 18 articles, four are located in institutional repositories or websites, with three being in the Rhodes University repository and one on a University of Cape Town website. Of these 18 articles, 10 are available as full text.

Eight of the nine journals in which the 18 articles are published appear on Sherpa Romeo, showing self-archiving which enables authors to make available their articles on their own websites or institutional repositories. Five of the journals are indexed by the Web of Science.

The only article which appeared in both the Google search and the Google Scholar search for "poverty alleviation South Africa" was "The importance of dry woodlands and forests in rural livelihoods" by Shackleton, Shackleton, Buiten & Bird (2007). Published in an Elsevier journal, *Forest Policy and Economics*, in 2007, this article is available on paid subscription at a cost to institutions of USD593 for 12 issues, or by online access to the single article for 24 hours at a cost of USD31.50. The version which appeared in the search results was not from the journal directly but was the version which was made available through the Rhodes University Institutional Repository from where it had been downloaded 2 356 times[3]. Of the referrals to the repository link, 65% were through search engines[4]. The article was also discoverable through Wikipedia - among the top 10 search results was one which led to Wikipedia, which then led to the article itself.

The university was able to make the article available according to the provisions outlined on Sherpa Romeo, the site where publishers' copyright and self-archiving policies are recorded. This is a Romeo Green Journal, which means that the author can legally archive a pre-print (pre-peer review) and a post-print (a final draft post refereeing), but not a publisher's PDF, in their institutional repository or on an institutional website. There is also an open-access publishing option for this journal, although it is not clear when this came into existence and it was probably not the case in 2007 when the article was archived in the institutional repository. The article charge for open-access publishing in this journal is USD3 000, which is extremely expensive, especially when foreign currency conversions are taken into account. This example of an often downloaded article which is widely downloaded and highly ranked provides a persuasive example of the effectiveness of self-archiving by universities, ie the green route in open access.

CITATIONS

Searching with the use of Google Scholar has some advantages over a Google search in that each of the Google Scholar results lists the number of citations for the scholarly paper, article or book. Through its "cited by" feature, Google Scholar provides access to abstracts of articles that have cited the article being viewed. Google's "cited by" feature presents a valuable innovation as compared to Scopus and ISI Web of Knowledge although, in a study limited to the biomedical field, the citation information found in Google Scholar has been found to be sometimes inadequate and less often updated (Falaga, 2007). The most cited document, "Fighting poverty with microcredit: Experience in Bangladesh", is a World Bank document, cited 535 times. The lone South African article on the first page was the least cited.

3 At the time of writing, 11 August 2012.

4 Statistics are available from the repository dashboard at http://eprints.ru.ac.za/414/, viewed 7 August 2012.

Table 1 shows the Google Scholar article results for "poverty alleviation South Africa" together with the number of times cited, as well as the number of duplications across the searches by participants in all geolocations. The article "Measuring poverty and deprivation in South Africa" was cited the most and is written by an academic from the University of Munich. The third most cited article, "Poverty, livelihood and class in rural South Africa", is co-authored by a non-South African academic from the University of Wisconsin and an academic from the University of KwaZulu-Natal. Interestingly the second most highly cited document, "Poverty and inequality in South Africa", is a presentation by Julian May of the Centre for Social and Development Studies, University of KwaZulu-Natal, not a journal article.

TABLE 1 : GOOGLE SCHOLAR "POVERTY ALLEVIATION SOUTH AFRICA" SCHOLARLY OUTPUTS, NUMBER OF TIMES CITED AND NUMBER OF DUPLICATIONS

Title of scholarly output	Number of times cited	Number of duplications
Measuring poverty and deprivation in South Africa	285	1
Poverty and inequality in South Africa	279	8
Poverty, livelihood and class in rural South Africa	267	2
Chronic poverty in South Africa: Incidence, causes and policies	171	16
The size and scope of the non-profit sector in South Africa	92	9
Links between the local trade in natural products, livelihoods and poverty alleviation in a semi-arid region of South Africa	54	16
Local economic development and urban poverty alleviation: The experience of post-apartheid South Africa	51	20
Pro-poor local economic development in South Africa: The role of pro-poor tourism	50	6
The importance of dry woodlands and forests in rural livelihoods and poverty alleviation in South Africa	47	16
The significance of the local trade in natural resource products for livelihoods and poverty alleviation in South Africa	47	15
Sectoral growth and poverty alleviation: a multiplier decomposition technique applied to South Africa	46	15
Local economic development in post-apartheid South Africa: A ten-year research review	35	1
Small enterprise development in post-apartheid South Africa: Gearing up for growth and poverty alleviation	30	5
Land reform and poverty alleviation in South Africa	28	13
Pro-poor local economic development in post-apartheid South Africa: The Johannesburg fashion district	23	6
Poverty alleviation and biodiversity conservation: A South African perspective	22	8
Microfinance and poverty alleviation in South Africa	22	3
The Child Support Grant in South Africa: A social policy for poverty alleviation?	21	2
Alternative foods and community-based development: Rooibos tea production in South Africa's West Coast mountains	20	4
Evolving local economic development policy and practice in South Africa with special reference to smaller urban centres	18	4
Connecting economic growth with poverty's LED challenge	18	2
Pastures of plenty? Land rights and community-based agriculture in Peddie, a former homeland town in South Africa	14	6
Setting the scene: Local economic development in southern Africa	10	4
Renewable energy technologies for poverty alleviation: Bio-diesel and solar-water heaters	3	5

The data in Table 1 shows that there is a wide range in the number of citations, ie highly cited articles do not necessarily appear in the search results for the majority of geolocations. It is interesting that the most highly cited article appeared in only one of the searches, that by the participant from Malaysia. The data makes it clear that there is no obvious connection between the number of citations and the number of times that the article concerned appears across the searches.

DUPLICATIONS AND SINGLE RESULTS

The Google search on "poverty alleviation" had a total of 33 sites represented in the search results. Of these, 15 sites appeared more than once and 18 of them only appeared once in any of the searches. The Google search on "poverty alleviation South Africa" has a total of 25 sites represented in the search results, of which seven appeared more than once and 18 of them appeared only once. The Google Scholar search on "poverty alleviation" had 15 sites represented in the search findings, of which nine appeared more than once and six appeared only once. As with the consistency of the content of results, so there was more similarity with the order of the results on Google Scholar, with four respondents' search results being identical in the Google Scholar "poverty alleviation" search. The others varied slightly in the order. The Google Scholar search on "poverty alleviation South Africa" had a total of 22 sites represented in the search findings, of which 20 appeared more than once, and two appeared only once.

THE RANKINGS OF THE RESULTS

Placement on search rankings is critical. Indeed they have become the raison d'être for an entire new set of activities – that of search engine optimisation – one which involves a delicate balance between the objectives of the search engines and the objectives of the content creators

The reason that rankings have become so important is because of the role that search engines now play in a digitally-mediated society – that of a surrogate expert. Simpson (2012) explains this crisply.

> When search engine results pages provide links to web pages and documents online, they imply that the target source is likely relevant to the enquirer's query. The results pages perform an additional function, however. By rank ordering the results, a further judgment is implied. When a link is ranked highly on the results page, it is implied that this is likely to be more relevant than those further down. In so far as one of the functions of a deep expert is to make a relevance judgment in orientating an enquirer to important sources of knowledge, not just relevant ones, search engines' decisions about which results to provide, in which rank order, is a quasi-fulfilment of the functions of a deep expert (p. 5).

There is therefore more at stake than simply convenience. A valuable study by Pan, Hembrooke, Joachims, Lorigo, Gay, and Granka (2007) powerfully illustrated that users trust higher ranking results even when those ranked lower are more relevant. Their eye-tracking experiment revealed that college student users have substantial trust in Google's ability to rank results by their true relevance to the query. When the participants selected a link to follow from Google's result pages, their decisions were strongly biased towards links higher in position even if the abstracts themselves were less relevant. While the participants reacted to artificially reduced retrieval quality by greater scrutiny, they failed to achieve the same success rate. As the authors note, this demonstrated trust in Google has implications for the search engine's tremendous potential influence on culture, society, and user traffic on the web.

In this study, we were interested in the rankings, ie the order in which results appeared, as well as how many results were duplicated across all the searches and how many appeared only once. We also wanted to know which results appeared the most often and how the results differed or were similar. What was noteworthy about the order of the results?

Table 2 shows the top five responses for the Google search "poverty alleviation".

TABLE 2: TOP FIVE RESPONSES FOR THE GOOGLE SEARCH POVERTY ALLEVIATION

Number of duplications	Title of website	Website
20	Poverty reduction	www.en.wikipedia.com
16	Poverty alleviation	www.povertyalleviation.org
12	Pakistan poverty alleviation fund	www.ppaf.org.pk/
12	Poverty alleviation overview	www.unep.org/ik/Pages.asp?id=Poverty%20Alleviation%200verview
12	REPOA – research on poverty alleviation, Tanzania	www.repoa.or.tz/

In the Google Search "Poverty Alleviation" it is striking that in every case the top ranking was Wikipedia. The dominance of Wikipedia merits some attention, especially considering the scepticism with which it is generally considered by academics. Less than 20 years old (1995), Wikipedia was the first independent site to build a collaborative encyclopaedia using wiki-based technology. It is ranked as the sixth top website in the world (calculated by a combination of average daily visitors and page views over a one month period), and is South Africa's eighth top site (www.alexa.com). At the time of writing (August 2012), it had over four million English articles with a total of 22 million in 285 languages. Written by about 100 000 regularly active contributors, it has an estimated 365 million readers worldwide (according to Wikipedia itself).

The quality of its articles and the use of Wikipedia for educational and scholarly purposes has been contentious and the subject of significant amounts of research - a study in 2010 had scanned over 2 000 papers on these issues (Okoli, Mehdi, Mesgari, Nielsen & Lanamäki, 2010). The well-known 2005 study found, after a blind comparative test of 42 entries in the *Encyclopedia Britannica* and Wikipedia, that they were of comparable quality (Giles, 2005). A small, more recent study compared a sample of Wikipedia entries with those in four others – *Encyclopaedia Britannica* (English), *Enciclonet* (Spanish), *Mawsoah* and *Arab Encyclopaedia* (Arabic) – and found that Wikipedia fared well (Casebourne, Davies, Fernandes & Norman, 2012). A study which looked specifically at the ranking of Wikipedia articles in search engines found that respondents considered them satisfactory overall in terms of the quality of the articles (Lewandowski, 2010).

That Wikipedia is widely used is apparent not only from its rankings but also from surveys, such as those undertaken by the PEW Research Centre, whose last survey on this matter found that as at May 2010, 53% of American Internet users reported looking for information on Wikipedia (Zickuhr & Rainie, 2011). It is not clear whether these are users who search Wikipedia directly; if so, then the numbers are likely to be higher. In universities both students and academics use Wikipedia: 75% of academics and students reported doing so in a 2012 study (Knight & Peryke, 2012), with student use typically being confined to the initial stages of assessments (ibid) or checking facts and finding background information (Lim, 2009). Academics are willing to accept the student use of Wikipedia as a "research starter" (Henk, 2010) and admit to using it "though cautiously" themselves (ibid); indeed 70% of academics report using Wikipedia for background information for teaching purposes (ibid), and have been found across the disciplines to cite Wikipedia as a source of scholarly information in their own peer-reviewed research reports (Dooley, 2010). Wikipedia's citation rates in scholarly publications have been consistently increasing; it was cited 3 679 times in the Web of Science and Scopus databases between 2002 and 2011 (Park, 2011).

While the development sector per se has not been studied in terms of Wikipedia use, there have been studies of application in relevant sectors which address poverty issues, specifically health. One such study provided a careful and comparative study of Wikipedia's role as an information source for health and found that English Wikipedia is a prominent source of online health information compared to the other online health information providers studied (Laurent & Vickers, 2009). They noted in 2009 that 70% of junior physicians use Wikipedia in a given week (p. 476) and 50-70% of practising physicians use it as an information source in providing medical care.

The second most highly ranked results – after Wikipedia – were almost, but not quite, the same, with 18 of the 20 searches coming up with a US-based poverty alleviation consultancy (www.povertyalleviation.org). Based in Pennsylvania in the US (not in Africa), this is a seven-year-old consultancy organisation which appeared to have an inordinately high number of search results. Other than the exact match of the term, it is not possible to assess on what basis this organisation was ranked so highly in the search results, nor is there any way of speculating on what search engine optimisation strategies might have been employed to gain such a high ranking.

The two exceptions to this second result were from Nigeria and India, each of which had a more specifically local result, with the latter being another Wikipedia result, this one targeted at an Indian searcher/user. The Nigerian second result was both local and keyword perfect ("Poverty alleviation in Nigeria: Which way Nigeria?") and provided a link to a publication by a company which is a subsidiary of a British publisher with a focus on the Nigerian market. This probably reflects the care that professional publishers take to ensure the searchability of the titles that they publish, in order to increase reach and potential sales.

There were three respondents from Europe and their search results order was identical for the top three hits. There were four respondents from Australasia and their results varied more significantly than the others, specifically India's search results which were more India-specific in content (as noted previously). The other three respondents search results order was only similar for the top two results.

It is of interest that the top four search results of three of the four respondents from North America were identical in order. Two respondents – both from the North-East United States – had search results that were identical in terms of their order. The other American searches located in the Western United States varied slightly in order of search results but contained all the same sites. The Canadian participant's search results contained four out of ten results with Canadian content or sites from within Canada. However, search results did represent similarly in that the top two search results for the Canadian respondent were the same as for the fourth North American respondent and two results within search results were the same site as those of the other three North Americans. It was therefore of interest that of the respondents from North America and Canada, there were two sets of results in identical order, an unusual finding given the way search personalisation works, as their searching patterns would not have been identical. It is also noteworthy that there was such similarity within the North American results (with only small differences of order) demonstrating surprising homogeneity. It is also of interest that there were so many local results within the findings of the Canadian searcher, especially given that that this was not the case with the North Americans.

Of the participants from Africa, three were from South Africa and one from Kenya. The Kenya search results also reflected a Kenya bias with two of the ten search results being Kenya specific. Otherwise the order for the search results was only similar for the top two results. The three respondents from South Africa did not contain any South Africa-specific results. Their search results were not similar in order but did contain the same results in a differing order.

There was more of an even spread of results with the more specific search for "poverty alleviation South Africa". Of the three responses which appeared the most, only one led directly to a full text article: "Poverty alleviation strategies in South Africa: creating dignified living for women through social justice and development".

Finally, in the case of Google searches, there was one case where two searches were identical: these were the searchers from Taiwan and Lebanon. It is not possible to ascertain why this might be the case, especially as the two individuals had different roles in different sectors.

Aside from this case, Google searches showed more variety than Google Scholar. Table 11, showing the top five responses for the Google Scholar search on "poverty alleviation", shows much more consistency across the searches. Whereas in the Google searches only one result appeared across all the searches, in the Google Scholar search of "poverty alleviation" three results appeared across the board (although they did not appear in the same order in the different searches).

TABLE 3: GOOGLE SCHOLAR TOP FIVE RESPONSES FOR POVERTY ALLEVIATION

Number of duplications	Title of resource	URL
20	Workfare versus welfare: Incentive arguments for work requirements in poverty alleviation programs	http://www.jstor.org/stable/10.2307/2117613
20	Poverty alleviation and tropical forests – What scope for synergies?	http://are.berkeley.edu/6274EA45-C35C-48E2-A800-80532895767F/FinalDownload/DownloadId-FA12E5DD1BBE1B0B0826140AA72E5BEE/6274EA45-C35C-48E2-A800-80532895767F/~cmantinori/wunder2001.pdf
20	Food subsidies and poverty alleviation	http://www.jstor.org/stable/10.2307/2233909
19	Fighting poverty with microcredit: Experience in Bangladesh	http://www.cabdirect.org/abstracts/19991800156.html
18	Microenterprise finance: Is there a conflict between growth and poverty alleviation?	http://www.sciencedirect.com/science/article/pii/S0305750X98000217

Interestingly, when the term "South Africa" was added, one result appeared in all participants' search results, namely "Local economic development and urban poverty alleviation: The experience of post-apartheid South Africa" (1998). As noted earlier, there was generally more uniformity in the Google Scholar responses, thus three papers appeared 16 times. Two of these were from the Rhodes University repository: "Links between the local trade in natural products, livelihoods and poverty alleviation in a semi-arid region of South Africa" (2003) and "The importance of dry woodlands and forests in rural livelihoods and poverty alleviation in South Africa", and one was an article in an Elsevier journal: "Chronic poverty in South Africa: incidence, causes and policies" (2008). The tendency towards more consistent results across the board in Google Scholar is interesting and indicates that factors like personalisation and geolocation play less of a role in these searches, suggesting that these results are likely to be more objective.

CONCLUSION

In answer to the overarching question "How does South African research and practice fare in Google search results on 'poverty alleviation'?" the answer is that South African results are not visible when the term "South Africa" is not included. It is particularly noteworthy that the three South African participants' searches on Google for "poverty alleviation" yielded no South African results, even though participants from other countries got results from their own countries (up to 60% of their results were local). The Google Scholar search for "poverty alleviation" was only marginally better, with only one result from South Africa among the 15 distinct responses.

Those resources which do appear in the search listings from South Africa are substantially those hosted by institutional repositories and websites which professionally curate content to make them discoverable to search engines. This provides clear evidence of the benefits of policies and practices which give value to making research publicly accessible and backing these with the resources and time to properly curate online resources. The findings demonstrate the importance of acquiring the expertise to ensure that potential search terms appear in the title and that articles employ current approaches to metatagging. It is also of note that so many of the search results are available as full-text documents, suggesting that this is both an emergent norm and a growing expectation.

It is of note that the only South African journal article which appeared across the board in the different types of searches is an article which has been archived in the author's institutional repository. This highlights the effectiveness of self-archiving, known as "the green route" in open access publishing. The value of self-archiving is further borne out by the fact that almost all the papers which did appear originated from Romeo Green journals which support self-archiving, thus powerfully demonstrating the value of open access in boosting discoverability.

The findings also illustrate the ubiquity of Wikipedia in the search results and how it consistently ranks as the first result in a general search. This suggests that researchers could better exploit Wikipedia's unfailingly high search rankings by ensuring that it is a consistent source of reliable information.

Overall, at the most straightforward level this study makes explicit the relative invisibility via Google search of the South African research in an area critical to scholars, students, policymakers and civil society, both locally and globally. This speaks to several inter-related issues, including: what kind of knowledge production (both research and practice based) is being undertaken; if and how it is being shared; where it is being made available; the extent to which it is online; and the extent to which content is online in ways discoverable by search engines. It also speaks to issues of capacity and expertise and to issues of policy regarding knowledge dissemination and open access.

This invisibility is not an indicator of a paucity of local research and knowledge production, although academic research undertaken in universities suffers from the pressures experienced by researchers to publish in so-called international journals with little interest in local development issues. Knowledge production also takes place in settings beyond universities – it is undertaken by private-sector research institutes, produced by the work of non-government organisations and commissioned by national, provincial and local spheres of government. Ironically, government departments themselves commission research and evaluative studies which are often embargoed and, despite being funded with public money, are not conceptualised as public goods. In the state sector there are too many knowledge outputs that remain locked away and inaccessible, not least of which is the South African government's own website on the War on Poverty (http://www.waronpoverty.gov.za), which can only be accessed by registered users and provides no way for users to join the site.

The findings of this study reveal how poorly the immediate results of online searches surface relevant local results. They show at a practical level the problems of information retrieval and of content discoverability. At the same time, at a policy level they point to the lack of national policy to manage and make accessible publicly funded research, data and other knowledge outputs in the online space. This severely limits the potential value of research and development and questions the public benefit of all the investment in knowledge production and poverty alleviation activities if the knowledge gained and produced remains below the radar and undiscoverable. This in turn diminishes the contribution of local knowledge production to local, national, regional and international development and limits participation and impact in global networks and knowledge circulation systems. Internationally, scholarly communication and knowledge production systems have become inexorably open. Unless South African policy actively supports open access and the online visibility of local knowledge, the danger is that the invisibility demonstrated in this paper will deepen.

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REFERENCES

Abrahams, L., Burke, M., Gray, E., & Rens, A. (2008). *Opening access to knowledge in Southern African universities*. Study Series 2008, Southern African Regional Universities Association. Retrieved from http://www.sarua.org?q=publications/opening-access-knowledge-southern-african-universities.

Brinkmann, M. (2009). Why Google search results can be different. *Ghacks Technology News*. Retrieved from http://www.ghacks.net/2009/09/02/why-google-search-results-can-be-different/.

Casebourne, I., Davies C., Fernandes, M., & Norman, N. (2012). Assessing the accuracy and quality of Wikipedia entries compared to popular online encyclopedias: A comparative preliminary study across disciplines in English, Spanish and Arabic. Retrieved from http://en.wikisource.org/wiki/Assessing_the_accuracy_and_quality_of_Wikipedia_entries_compared_to_popular_online_encyclopaedias.

Chan, L., Kirsop, B., & Arunachalam, S. (2011). *Towards open and equitable access to research and knowledge for development. PLoS Medicine*, *8(3)*, 4. Public Library of Science. Retrieved from http://dx.plos.org/10.1371/journal.pmed.1001016.

Connaway, L. S., Dickey, T. J., & Radford, M. L. (2011). If it is too inconvenient I'm not going after it: Convenience as a critical factor in information-seeking behaviors. *Library Information Science Research, 33(3)*, 179-190. Elsevier Inc. Retrieved from http://linkinghub.elsevier.com/retrieve/pii/S0740818811000375.

Cutts, M. (2012). How Google works: Algorithms rank relevant results higher in About Search. Google inc. Retrieved from http://www.google.com/competition/howgooglesearchworks.html.

Department of Performance Monitoring and Evaluation in the Presidency (2012). Development indicators 2011. Retrieved from http://www.thepresidency-dpme.gov.za/dpmewebsite/_admin/Images/ProductDocuments/Development%20Indicators%202011.pdf.

De Satgé, R. (2012). Assessing the need for a poverty information service. Report commissioned for the South African Treasury's Programme to Support Pro-Poor Policy Development, (unpublished).

Dooley, P. (2010). Wikipedia and the two-faced professoriate. *Proceedings of the 6th International Symposium on Wikis and Open Collaboration WikiSym 10, 153(3)*, 1. ACM Press. Retrieved from http://portal.acm.org/citation.cfm?doid=1832772.1832803.

Du Toit, A. (2005). Chronic and structural poverty in South Africa: Challenges for action and research, Centre for Social Science Research UCT, CSSR Working Paper Number 121. Retrieved from www.sarpn.org/documents/d0001562/P1912-du-Toit_July2005.pdf.

Falagas, M. E., Pitsouni, E. I., Malietzis, G. A., & Pappas, G. (2007). Comparison of PubMed, Scopus, Web of Science, and Google Scholar: Strengths and weaknesses. *The FASEB Journal 22 (2)*: 338–342. Retrieved from http://hlwiki.slais.ubc.ca/index.php/Web_of_Science_vs._Scopus.

Giles, J. (2005). Internet encyclopaedias go head to head. Nature, 438(7070), 900-1. Nature Publishing Group. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16355180.

Gray, E., Trotter, H., & Willmers, M. (2012). Scholarly communication in Africa: Aligning strategy and technology for increased visibility of Southern African research. Paper presented at Emerging African ICTD Research: Learning from Africa, at the International Association for Media and Communication Research (IAMCR) 2012 conference at the University of KwaZulu-Natal, Durban, 16-19 July 2012.

Hamman, R. (2012). Balancing the academic terms of trade: The paradox of publishing in top-tier journals from the periphery, (unpublished).

Hodgson, A. (2012). Special report: Income inequality rising across the globe. Euromonitor International. Retrieved from http://blog.euromonitor.com/2012/03/special-report-income-inequality-rising-across-the-globe.html.

Horton, R. (2003). Medical journals: Evidence of bias against the diseases of poverty. *The Lancet*, Vol 361, (9539), 712-713.

Jimenez, J., & Santill, X. (2011). Benchmark of annotation of geolocation between Google and Yahoo. *2011 IEEE Electronics Robotics and Automotive Mechanics Conference*. IEEE. Retrieved from http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=6125875&tag=1.

Knight, C., & Pryke, S. (2012). Wikipedia and the university, a case study. *Teaching in Higher Education*, (March), 1-11. Routledge. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/13562517.2012.666734.

Laurent, M., & Vickers, T. (2009). Seeking health information online: Does Wikipedia matter? *Journal of the American Medical Informatics Association*,16(4), 471-479. American Medical Informatics Association. Retrieved from http://171.67.114.118/content/16/4/471.full.pdf+html.

Levy, S. (2010). How Google's algorithm rules the Web. *Wired Magazine*. Retrieved from http://www.wired.com/magazine/2010/02/ff_google_algorithm/.

Lewandowski, D., & Spree, U. (2011). Ranking of Wikipedia articles in search engines revisited: Fair ranking for reasonable quality? *Journal of the American Society for Information Science, 62(1)*, 117-132. Wiley Subscription Services, Inc., A Wiley Company. Retrieved from http://arxiv.org/abs/1109.0916.

Liebrandt, M., Woolard, I., Finne A., & Argent, J. (2010). *Trends in South African income distribution and poverty since the fall of apartheid*. OECD Publishing. Retrieved from http://www.npconline.co.za/MediaLib/Downloads/Home/Tabs/Diagnostic/Economy2/Trends%20in%20South%20African%20Income%20Distribution%20and%20Poverty%20since%20the%20Fall%20of%20Apartheid.pdf.

Lim, S. (2009). How and why do college students use Wikipedia? *Journal of the American Society for Information Science, 60(11)*, 2189-2202. Wiley Online Library. Retrieved from http://portal.acm.org/citation.cfm?id=1656292.

Mbeki, T. (2008). State of the Nation address of the President of South Africa, Thabo Mbeki: Joint Sitting of Parliament, 8 February 2008, The South African Presidency, Retrieved from http://www.info.gov.za/speeches/2008/08020811021001.htm.

Mokomele-Mothibi, M. (2012). MEC report to National NPO Summit, Presentation, Department of Social Development, Retrieved from www.dsd.gov.za/index.php?option=com_docman&task=doc.

Nicholas, D., Clark, D., Rowlands, I., & Jamali, H. (2009). Online use and information seeking behaviour: Institutional and subject comparisons of researchers. *Journal of Information Science, 35(6)*, 660-676. Sage Publications, Inc. Retrieved from http://jis.sagepub.com/cgi/doi/10.1177/0165551509338341.

Nyamnjoh, F. (2010). Open Access and open knowledge production. *The African Journal of Information and Communication 10*: 67-72, Retrieved from http://link.wits.ac.za/journal/AJIC10-Nyamnjoh.pdf.

O'Dell, J. (2012). What Google+ means for Facebook. Mashable. Retrieved from http://mashable.com/2011/03/31/googles-plus-1-and-facebook/.

Okoli, C., Mehdi, M., Mesgari, M., Nielsen, F., & Lanamäki, A. (2012). The people's encyclopedia under the gaze of the sages: A systematic review of scholarly research on Wikipedia. *Social Science Research Network*. SSRN. Retrieved from http://ssrn.com/paper=2021326.

Pan, B., Hembrooke, H., Joachims, T., Lorigo, L., Gay, G., & Granka, L. (2007). In Google we trust: Users' decisions on rank, position, and relevance. (S. C. Herring, Ed.) *Journal of Computer-Mediated Communication, 12(3)*, 801-823. USC Annenberg School for Communication. Retrieved from http://jcmc.indiana.edu/vol12/issue3/pan.html.

Park, T. (2011). The visibility of Wikipedia in scholarly publications. *First Monday, 16(8)*, 26. Retrieved from http://www.uic.edu/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/3492.

Shackleton, C., Shackleton, S., Buite, E., & Bird. N. (2007). The importance of dry woodlands and forests in rural livelihoods and poverty alleviation in South Africa. Forest Policy and Economics, 9, 558-577.

Simpson, T. (2012). Evaluating Google as a epistemic tool. *Metaphilosophy 43*, 426–445. Retrieved from http://people.ds.cam.ac.uk/tws21/preprints/2012_Metaphilosophy_Evaluating%20Google%20as%20an%20Epistemic%20Tool_preprint.pdf.

Waller, V. (2011). Not just information: Who searches for what on the search engine Google? *Journal of the American Society for Information Science, 62(4)*, 761-775. Wiley Subscription Services, Inc., A Wiley Company. Retrieved from http://doi.wiley.com/10.1002/asi.21492.

Walters, W. (2011). Comparative recall and precision of simple and expert searches in Google Scholar and eight other databases, libraries and the Academy. *Portal Libraries and the Academy 11 (4)* 971–1006. Retrieved from http://muse.jhu.edu/journals/portal_libraries_and_the_academy/v011/11.4.walters.html.

Zickuhr, K., & Rainie, L. (2011). Wikipedia, past and present: 42% of all Americans turn to the popular collaborative encyclopedia for information online. PEW Internet and American Life Project. Retrieved from http://pewinternet.org/~/media//Files/Reports/2011/PIP_Wikipedia.pdf.