Forum

An ICT4D Journal Ranking Table

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In most academic fields, there are journal ranking lists. Some may be qualitative and subjective, created by polling academics working in the field. Others are quantitative and more objective, such as those created within ISI's Web of Knowledge Journal Citation Reports.

In the sub-discipline of information and communication technology for development (ICT4D), we have neither. Polls have not been conducted, and our specialist journals are not included in ISI's journal database.

This is problematic for at least two reasons. First, those of us working in the field and wishing to reach out to an ICT4D-specific audience have no sound basis on which to select one specialist journal in the field over another. Second, we have no sound basis on which to compare publication in ICT4D specialist journals against publication in "mainstream" disciplinary journals.

With this in mind, I have set out to create an ICT4D journal ranking table. The table is based on citation data and includes some comparative data from disciplinary journals.

The first task was to select "ICT4D specialist" journals. These were selected on the basis of title by identifying all journals with titles that combine some reference to ICTs or some component part or synonym, with some reference to development (as in "international development") or either developing countries or regions dominated by developing countries. That provided a list of 16 current journals (see Table 1), though one could not be included in the ranking, as it has too recently started publication.

A key factor for any author in determining where to publish is the likely impact of their article, something that is usually proxied via a measure of overall journal impact. Since no such measure exists for ICT4D journals, it had to be created.

Google Scholar was selected, rather than one of the narrower databases such as Web of Knowledge or Scopus. Google Scholar tracks a broad range of citations of published papers and—unlike other databases—this integrates use in academic journals, conferences, working papers, and online reports. In other words, it provides a measure of impact that spreads beyond academia, with some incorporation of publication in, for example, international agencies.

It was decided to measure impact for two years: 2008 (recent, but not so recent that few items might be cited) and 2005 (many ICT4D journals are quite new, meaning that the earlier the second year, the fewer journals that could be included; 2005 was selected since 10 of the journals were publishing then). Google Scholar was searched for the title of all papers published by the journals in the given year (excluding editorials), and the number of citations recorded. From this, the average number of citations per paper for each journal could be calculated. Since citations rise over time, this figure was moderated by dividing it by the average

Table 1. ICT4D Journal Impact Ranking Table.

	Journal	2005 Score	2008 Score	Overall Score
1	*Information Technologies & International Development*	2.61	2.08	*2.35*
2	*Electronic Journal of Information Systems in Developing Countries*	3.62	1.00	*2.31*
3	*Information Technology for Development**	2.94	1.35	*2.15*
4	*African Journal of Information and Communication*	1.09	0.40	*0.75*
5	*International Journal of Education and Development Using Information and Communication Technology*	1.01	0.40	*0.71*
6	*Asian Journal of Communication**	1.16	0.23	*0.70*
7	*Journal of Health Informatics in Developing Countries*	n/a	0.43	*0.43*
8	*Information Development**	0.35	0.25	*0.30*
9	*International Journal on Advances in ICT for Emerging Regions*	n/a	0.26	*0.26*
10	*African Journal of Information & Communication Technology*	0.25	0.04	*0.15*
11	*South African Journal of Information Management*	0.28	0.00	*0.14*
12	*African Journal of Information Systems*	n/a	0.05	*0.05*
13	*International Journal of Information Communication Technologies and Human Development**	n/a	0.01	*0.01*
14	*Asian Journal of Information Technology**	0.01	0.00	*0.01*
15	*Asian Journal of Information Management*	n/a	0.00	*0.00*
—	*International Journal of ICT Research and Development in Africa**	n/a	n/a	*n/a*

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number of years elapsed since publication (giving, roughly, a mean annual citation rate).

The results of this are shown in Table 2. However, for a better measure of impact, certain modifications were useful in taking account of three factors:

- Average citation figures mask a significant range, including, typically, some proportion of articles that are never cited—and the higher that proportion, the less the likelihood of any impact for an individual paper.
- Papers for a few journals were not merely uncited, they were not even listed in Google Scholar, suggesting poor likelihood of impact that should be reflected. Taking uncited and unlisted articles into account can be seen as making the overall score a mix of mean and median measures of impact.
- Papers in open access journals will receive many more downloads than those in subscription journals, and are thus likely to have an impact beyond that represented in the citation figures. In this instance, a multiplier of an additional 50% was used for open-access journals.

There is no exact science to the incorporation of such factors, but the suggested, and utilized, impact score is calculated with the following method:

> ***Journal Impact Score*** = (average cites per paper * (1 − ((uncited papers − unlisted papers)/2) − unlisted papers) / average number of years since publication) * journal accessibility multiplier

On that basis, Table 1 shows the ICT4D journal ranking table. Where applicable, the overall score is the average of the 2005 and 2008 individual scores. Table 2 shows the table calculated solely on the basis of simple citation score:

> ***Journal Citation Score*** = average cites per paper / average number of years since publication

Discussion

The main difference between the two tables derives from the weighting given to open access journals (those with closed subscriptions are marked with an asterisk). However, taking the two tables together, there is a clear general conclusion: Whatever the specific basis for calculation, three journals—the *Electronic Journal of Information Systems in*

Table 2. ICT4D Journal Citation Ranking Table.

	Journal	2005 Score	2008 Score	Overall Score
1	*Information Technology for Development**	2.94	1.58	*2.26*
2	*Electronic Journal of Information Systems in Developing Countries*	2.69	0.81	*1.75*
3	*Information Technologies & International Development*	1.82	1.55	*1.69*
4	*Asian Journal of Communication**	1.19	0.4	*0.80*
5	*African Journal of Information and Communication*	0.87	0.44	*0.66*
6	*International Journal of Education and Development Using Information and Communication Technology*	0.77	0.39	*0.58*
7	*Journal of Health Informatics in Developing Countries*	n/a	0.42	*0.42*
8	*Information Development**	0.40	0.37	*0.39*
9	*International Journal on Advances in ICT for Emerging Regions*	n/a	0.28	*0.28*
10	*African Journal of Information & Communication Technology*	0.24	0.06	*0.15*
11	*South African Journal of Information Management*	0.26	0.00	*0.13*
12	*International Journal of Information Communication Technologies and Human Development**	n/a	0.11	*0.11*
13	*African Journal of Information Systems*	n/a	0.06	*0.06*
14	*Asian Journal of Information Technology**	0.04	0.00	*0.02*
15	*Asian Journal of Information Management*	n/a	0.00	*0.00*
—	*International Journal of ICT Research and Development in Africa**	n/a	n/a	*n/a*

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Developing Countries, Information Technologies & International Development, and *Information Technology for Development*—have a much greater impact than any of the other journals. Indeed, their combined impact is about twice that of all other ICT4D specialist journals combined.

The implication for those wishing to select an impactful specialist ICT4D journal is clear, but the earlier question remains about comparative selection between ICT4D specialist journals and mainstream disciplinary journals. To help address this question, the same calculations were conducted for a selection of such mainstream disciplinary journals in which ICT4D work has appeared:

- Development studies (DS): the top journal *(World Development)* and a lower-ranked journal *(Journal of International Development)*
- Information systems (IS): a top journal *(Information Systems Journal)* and a mid-ranked journal *(The Information Society)*
- Technical informatics/computer science (CS): a top journal *(Human-Computer Interaction)*

The results, including just the top three ICT4D journals, are shown in Tables 3 and 4.

Prime facie, it would appear that publication in a disciplinary journal would result in a greater likelihood of impact and citation. However, we should consider a range of factors beyond these measures, which can be categorized as follows:

- Positive: For many disciplinary journals, at least for academic authors, there is greater kudos in tenure and promotional terms from publishing in one of the disciplinary journals, as these appear in academic ranking tables, whereas ICT4D journals tend not to.
- Neutral: Much eroded since the move from paper publication to online search accessibility, it is still likely that different journals reach somewhat different audiences. And these figures are averages; they may tell any individual very little about the relative impact of his or her own particular paper if it is published in different outlets.
- Negative: It is likely that rejection rates are higher in disciplinary journals. Even if the paper is accepted, the time and effort required to achieve publication will be higher than in ICT4D journals, despite refereeing being used

Table 3. ICT4D vs. Disciplinary Journal Impact Scores.

Type	Journal	2005 Score	2008 Score	Overall Score
DS	*World Development**	8.96	6.04	*7.50*
IS	*Information Systems Journal**	7.62	2.89	*5.26*
CS	*Human-Computer Interaction**	5.34	4.06	*4.70*
IS	*The Information Society**	5.98	3.23	*4.60*
ICTD	*Information Technologies & International Development*	2.61	2.08	*2.35*
ICTD	*Electronic Journal of Information Systems in Developing Countries*	3.62	1.00	*2.31*
ICTD	*Information Technology for Development**	2.94	1.35	*2.15*
DS	*Journal of International Development**	2.44	1.28	*1.86*

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Table 4. ICT4D vs. Disciplinary Journal Citation Scores.

Type	Journal	2005 Score	2008 Score	Overall Score
DS	*World Development**	8.96	5.95	*7.46*
IS	*Information Systems Journal**	7.62	2.71	*5.16*
CS	*Human-Computer Interaction**	5.34	3.85	*4.60*
IS	*The Information Society**	5.98	3.10	*4.54*
ICTD	*Information Technology for Development**	2.94	1.58	*2.26*
DS	*Journal of International Development**	2.49	1.46	*1.97*
ICTD	*Information Technologies & International Development*	1.82	1.55	*1.69*
ICTD	*Electronic Journal of Information Systems in Developing Countries*	2.69	0.81	*1.75*

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in all the Table 3 & 4 journals. Almost all disciplinary journals are closed subscription. This means that (notwithstanding access programmes such as INASP's PERii) they are less accessible to audiences outside industrialized country academia; yet such an audience is potentially a prime one for ICT4D writing, particularly for those seeking to impact policy and practice. Very much related to this, the non-citation-based impact of items published in open access journals is likely to be higher than for subscription journal publication. As one measure, figures can be compared between the open access *Electronic Journal of Information Systems in Developing Countries,* which suggest typical rates of around 500 downloads per paper per year, and subscription-based *Information Technology for Development,* which suggests typical rates of around 100 accesses per paper per year.

Picking up on some of these points, one may note that the variation in average impact between specialist ICT4D journals and mainstream disciplinary journals is not *that* great—typically only a factor of two or three. One might, then, readily use these figures at faculty meetings, for example. In combination with the points about higher download rates, the arguments for reaching out to developing country audiences and to policy/practice audiences, and specifically targeting and developing the ICT4D subdiscipline, can be used to make a fairly robust case for the presence of ICT4D specialist journal publications in a tenure and/or promotional portfolio.

Supplementary: ISI and Google Scholar

One potential difficulty of utilizing this data in an academic institution is that Google Scholar may be understood less well, or may perhaps be less valued,

Table 5. Google Scholar vs. ISI Journal Citation Scores.

Type	Journal	2008 Google Scholar Score	2009 ISI Journal Impact Factor	Converter
DS	*World Development*	5.95	1.225	*4.86*
IS	*The Information Society*	3.10	1.111	*2.79*
IS	*Information Systems Journal*	2.71	1.419	*1.91*
CS	*Human-Computer Interaction*	3.85	6.190	*0.62*

than more formal citation sources such as ISI. This is changing, but some comparison can be made.

Making a comparison with ISI's Journal Impact Factor is problematic, because it is calculated rather differently from the Google Scholar data used here. JIF looks at a particular year (at the time of writing, the latest was 2008) and asks how many times articles published in the previous two years were cited in that year. The Google Scholar citation score method used above takes a particular year (e.g., 2008) and asks how many time articles published in that year have subsequently been cited in total, then dividing by the years elapsed since publication to get a rough citations-per-year score.

Table 5 shows the comparative scores for those journals that appear in both ISI's Journal Citation Reports and the tables above. However, the calculation differences mean the converter cannot be read as saying, for example, that Google Scholar identifies nearly five times more citations for World Development articles than ISI.

The sample here is tiny, but it suggests a couple of things outlined by other sources (see especially Harzing's 2008 work, *Google Scholar—A New Data Source for Citation Analysis,* at http://www.harzing.com/pop_gs.htm, which analyzes a lot of evidence and demonstrates some basis for preferring GS to ISI in academic decision making). Effects vary by discipline—*very* roughly, the softer/more social science the discipline, the more additional citations Google Scholar seems to pick up. Given their positioning on the soft-hard spectrum, a *very* rough converter for ICT4D journals might be 2.00 (e.g., *ITID* might have a JIF for 2009 of something like $1.55 \div 2 = 0.775$), but one would need more data to even approach validity for this. Second, in addition to being more accessible (and disciplinary variations notwithstanding), Google Scholar does appear to be picking up more citations than ISI. At least, then, this suggests that Google Scholar is different from, not worse than, ISI. At most, Google Scholar can be argued to capture more of an article's citation impact.

Overall, this is a first attempt at creating a journal ranking for the ICT4D sub-discipline, at offering a benchmark against cognate discipline journals, and at providing some guidance on publication strategy. I hope to update the ranking table in future, thus helping to build a more comprehensive picture. ■