The role of the librarian in measuring research impact

Dr. Clare Thornley
3 questions

• What is research impact?

• How / can we measure it?

• What role can/should librarians play?
  Some examples from my own experience
1. What is research impact?

- What is research?
  Discussion from participants

- What is impact?
  Discussion from participants
1. What is research impact? Some more ideas...and some more questions...

- What is research?
- New knowledge?
- New information?

- How can it have an impact?
- By changing knowledge?
- By changing behaviour?
What is impact?

Changing knowledge

• A lot of research knowledge is contained/represented in academic publications.

• The influence or extent to which research has changed knowledge can be ‘measured’ by examining how one publication has influenced/changed the papers that come after it.
What is impact?

• Academic publications base their research on previous research and acknowledge this by citing previous research papers in the references.

• Citing is acknowledging previous research work in a paper as having some relevance/influence on current paper. E.g ‘Following Smith’s (2014) seminal work on genetics we tested the effect of x gene on y condition….

• How often a research paper is cited gives an indication of how much influence it has had/ how much it has changed knowledge???

• Law as an example (precedent)
What is impact?

• Citation indices (define) show where (and how often) a particular paper has been cited.
• Originally used for error checking and information retrieval.
• To ‘guard against the propagation of error’, Eugene Garfield.
• A researcher could check if paper he/ she was reading had been discounted/found to be wrong in more recent publications before using it has a basis for their own research.
• Aim was to ‘nip in the bud’ mistakes in science.
What is impact?

Citation indices

• Used for information retrieval (IR).
• A new way of showing connections between documents to aid the retrieval of relevant documents by a user.
• Not just about content or classification (ahead of its time, PageRank in Google).

"SCI follows the thread of a theme throughout the years and across artificial boundaries imposed by classification schemes and journal titles." — Dr. Eugene Garfield
What is impact?

• Citation indices were about:

• Providing accurate information by alerting to readers to errors.

• Providing new ways of providing relevant information.

• These are key elements of the library and information profession.
How can we measure impact?

• What is measurement? Discussion from participants

• How do we measure things? Discussion from participants

• Why do we measure things? Discussion from participants
Is research impact the kind of thing that can be measured?

‘Philosophy (science) will clip an Angel's wings, Conquer all mysteries by rule and line, Empty the haunted air, and gnomèd mine’
(Keats, Lamia)

• But he was trying to alert his hero to an error!
• Some kinds of research are more amenable to measurement than others.
• Measurement is a political act and within research has a strong relationship to funding and promotion. Some subjects will never ‘win’. (e.g. small countries, ‘minority’ languages)
How can we measure impact?

• Citation indices are now also used as a measurement tool
• How much influence has this research had?
• How much has it changed things?
• These are about the effective use of information and knowledge to change the world?
• A key element for the library and information profession?
• A critical understanding of information is needed to ‘make sense’ of this
How can we measure impact?

• Bibliometrics uses citations counts to measure the impact of research.
• Assumption is ‘If a paper is cited a lot then it is an influential paper/has made a big impact’.
• What problems might there be with this approach?
• How accurately do citation counts reflect impact (quality, value..)?
• Any opinions/views?
Measuring impact: Bibliometrics

• A method of research impact evaluation
• How many cites does my research get?
• Can I get my research published in a journal that ‘on average’ gets a large number of cites?
• Does my paper get more cites than the average cite count of the journal?
• Impact factors of journals: a continuous disputed hierarchy which nobody really disputes....
Measuring impact of journals: Bibliometrics

- High impact journals
- A journal with a high IF (impact factor) is one which contains papers which over a certain time period are cited ‘on average’ a large number of times.
- Citation data is always very skewed i.e. some papers get cited a lot and most never get cited at all.
- ‘Average figures’ need to be judged with care (Bill Gates on bus example)
- I could have a paper in a high impact journal which no one ever cites
Measuring impact of researchers: Bibliometrics

- Cites to my research
- How many cites have I got and how many of my papers have got a lot of cites?
- Am I a ‘one hit wonder’?
- There are numerous indices to use.
- Most popular is H-index
- If my H-index is 4 at least 4 of my papers have been cited 4 or more times. Avoids influence of just one highly cited paper.
- Some people have this number ‘live’ on their website....
Measuring impact: Bibliometric tools

- Web of Knowledge and Web of Science Thomson Reuters: commercial subscription service
  - http://sciencewatch.com/nobel
- Publish or Perish: freely accessible
- Discussion of pros and cons
- Coverage (e.g. computer science, conferences)
- Usability
Measuring impact: open access and bibliometrics

• If my work is open access will I get more citations?
• Some journals are completely open access.
• Many also allow authors to put up pre-print of published paper in university repository, as well as in published journal.
• Receive information on downloads (where and when) which can be very interesting.
• Downloads as measure of impact?
Other measurements of impact

- Altmetrics (impact on social media)
- How often is my research tweeted about, blogged about?
- Who is using it and how important are they?
- How many downloads does my research get?
- How many views does my research get?
- How often do I get on TV?
- Historic Scotland signs?
- Have I influenced government policy guidelines?
- So far influence on research peers is what counts the most the most researchers…http://ciber-research.eu/download/20140115-Trust_Final_Report.pdf
Measuring the impact of research: the role of the librarian

Some examples from my own career

• Developing best practice guidelines on volunteering (research into practice?).

• Measuring the scholarly impact of TREC Vid (video retrieval benchmarking research).


• Developing best practice guidelines (in a formal framework) for use of information and ICT for innovation (research into practice?).

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Measuring the impact of research: the role of the librarian

• Bibliometrics is about trying to measure how much (and sometimes in what ways) research is USED.

• It is about information use so it should concern us.

• Researchers/academics can use libraries to help devise best ways of measuring their research (some examples).

• Collecting citation data and providing background knowledge to what it may actually mean.

• A critical understanding of issues is needed.
The role of the librarian

• Understanding the meaning of research impact within the context of effective information and knowledge use

• Understanding how to use the tools and knowing their limitations

• Educating and advising faculty and research students

• Providing critical voice. Like any assessment/measurement exercise research impact measurement is imperfect and can detract from point of research.
Further information

- A history lesson
  [http://wokinfo.com/scianniversary.html?elq=e2045b98ab164ffd9fc8a541f73c4ab5&elqCampaignId=9007](http://wokinfo.com/scianniversary.html?elq=e2045b98ab164ffd9fc8a541f73c4ab5&elqCampaignId=9007)

- More recent guidance
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