Academic Networking for Architects? How to Improve the Visibility of Research Activities via Alternative Routes

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Academic Networking for Architects - How to Improve the Visibility of Research Activities via Alternative Routes

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Abstract
Academics are increasingly required to demonstrate their research activities, ideally via measurable performance indicators. At the Technical University of Munich, the university library has started a program to support university management and departments as well as individual researchers in improving the visibility and impact of their research.

In August 2016, the Department of Architecture first approached the library for advice on how to change its publishing culture to make it more open, international and competitive. The department was struggling to provide evidence of their research output, which does not fit the classical system of scholarly communication. Architectural works come in a wide range of formats and their impact is often hard to measure.

Following our usual course of action, we conducted a survey on profiles and performance indicators of TUM architecture professors, regarding their scholarly output. Not surprisingly, a comprehensive analysis on Web of Science and Scopus confirmed that only a small number of the professorate were represented. However, we found various works on Google Scholar, and individual lecturers use academic networking sites to present their work and projects.

This led to the question: do academic networking sites have the potential to fill the visibility gap for academics, such as architects, from a non-classical publishing culture, and can they provide them an alternative route to provide evidence of their research activities?

Based on the QS ranking, we analysed the representation of researchers from top ranked universities on different academic networking sites to find out if there is a correlation between presence and excellence. In this paper, the results of the analysis and how it informed our consultation service for the department will be presented.

Sub-topic: Research Support Services

Keywords: architectural researchers, architects; visibility, publishing culture, bibliometrics, academic networking, research support, Scopus, Web of Science, Google Scholar, ResearchGate, Academia.edu

Introduction
Academics are increasingly required to provide evidence of their research activities, ideally via measurable performance indicators. Universities and research agencies employ bibliometric analyses to assess the quality of scholarly output. However, publication practices vary significantly among disciplines. As reported by Linda Butler in the Australian Research Quality Framework (Linda Butler, 2008), the proportion of Australian university publications appearing in Web of Science-indexed journals range between 4% and 83%. Architecture ranks third to last in this list with 5% of the total
publications indexed on the Institute for Scientific Information ISI (now Web of Science). For this paper, we analysed the visibility of architectural researchers on different platforms and investigated whether alternative routes exist to improve the visibility of research activities for architectural researchers.

Background
At the Technical University of Munich (TUM), the university library has introduced a program to support university management and departments as well as individual researchers in improving the visibility and impact of their research. Following a presentation of these services at the faculty meeting of the Department of Architecture, the head of strategic development approached the library for our advice and support. The aim was to improve the visibility of the department's research and to change its publishing culture to make it more open, international, and competitive. With 29 professors, approximately 200 members of academic staff, and 1,500 students in bachelor and master degree programs, it is one of the smaller departments at TUM. All departments are subject to formal evaluations, which take place on a regular basis and include self-assessment of research activities. The department management therefore felt that they should initiate a comprehensive program to support research activities tailored to the needs of the architectural researchers in the different sub-disciplines, to be prepared to provide evidence of their research when needed.

First, we decided to conduct a study on profiles and performance indicators among all TUM architecture professors regarding their scholarly output. The results confirmed that only a small number of professors are represented in the databases Web of Science and Scopus. However, various works were listed on Google Scholar, and individual lecturers use academic networking sites to present their work and projects quite extensively. We presented the results to the department, highlighting best practice among TUM architectural researchers and pointing out the potential for improving research visibility in the department.

At the suggestion of the department, the next step was to determine best practice examples from architectural researchers at selected institutions and compare these with the results at TUM.

Research Questions
The purpose of this paper is to assess the visibility of the research output of architectural researchers from top institutions in the databases Web of Science \(^1\) and Scopus as well as academic platforms, and further to explore the potential of academic networks to improve the visibility of research activities. Questions guiding this research are as follows:

1) To what extent are architectural researchers from top institutions represented in the databases Web of Science and Scopus?
2) To what extent are architectural researchers from top institutions represented on the platforms Google Scholar, ResearchGate and Academia.edu?
3) How do the results compare to the TUM Department of Architecture?
4) Are there differences among the architectural sub-disciplines?
5) Is there a relation between presence on databases and academic networks?
6) What potential do academic networking sites offer to architectural researchers?

\(^1\) Thomson Reuters Web of Science. The search was conducted in the Web of Science Science Citation Index Expanded (SCI-Expanded), Social Sciences Citation Index (SSCI) and Conference Proceedings Citation Index - Science (CPCI-S)
Methods
In line with the research questions, data on different sample groups of researchers were collected and analysed. For each individual, we collected data for the publication output in Web of Science and Scopus, as well as profiles and representation on Google Scholar, ResearchGate und Academia.edu. The data were collected manually on the platforms between March and May 2017.

In order to provide an equal distribution and to determine if there is correlation between the publication culture and the different disciplines within architecture, all researchers were assigned to one of six sub-disciplines:

A Architecture / Design / Arts
Planning / Urban Studies / Landscape / Built Environment
B
C Building Technology
D Computation
E History / Theory / Criticism
F Project Management

Top institutions (Research questions 1 - 2):
Based on the 2016 QS subject-specific ranking for architecture, I analysed a selection of researchers from the architecture departments of the top three ranked universities: the M.I.T. School of Architecture and Planning, TU Delft Faculty of Architecture and the Built Environment, and The Bartlett from the University College London (UCL).

For each institution, we selected 10 to 14 individuals\(^2\) from the different sub-disciplines.\(^3\) The selection included professors or chairs, preferably with doctoral degrees and senior roles in their departments and/or those who were heads of research groups. This led to a sample group of 35 researchers from the three institutions.

TUM Department of Architecture (Research question 3):
For TUM, the publication output and profiles of all 29 professors of the department of Architecture were collected and analysed, which made the size of the group comparable to that of the group selected from the top institutions.

Differences among sub-disciplines and the relationship between the presence on databases and academic networks (Research questions 4 – 5):
For these questions, a selection of researchers from all four institutions was analysed. The group comprised 45 individuals.

Limitations
The sample group of researchers from the top institutions account for between 25% and 34% of the total number of professors at each institution. They do not represent all researchers from the institutions chosen, but examples of best practice. This should be taken into consideration when results from this group are compared to the group of TUM professors.

Though results were reviewed with random checks there are still potential nonconformities and uncertainties in cases where author identities were difficult to determine in Web of Science and Scopus.

\(^2\) proportional to the total number of chairs/professors
\(^3\) proportional to the distribution among the institutions
Results

1) To what extent are architectural researchers from top institutions represented in the databases Web of Science and Scopus?

Nearly all researchers (32 out of 35) from the top institutions had at least one publication listed in Web of Science, with 19 of them having more than 10. The coverage in Scopus was slightly better with all researchers having at least one publication in the database, and 24 having more than 10 publications (see figure 1).

![Figure 1: Number of professors from top institutions in Web of Science and Scopus](image1)

2) To what extent are architectural researchers from top institutions represented on Google Scholar, ResearchGate and Academia.edu?

Of the group of 35 researchers, we found that 15 had a profile on Google Scholar, 17 on ResearchGate and 24 on Academia.edu. This is in contrast to the results from the Springer Nature survey on online collaboration (Tina Harseim, 2017) where ResearchGate was the most used academic platform for the respondent scientists.

![Figure 2: Number of professors from top institutions in Google Scholar, ResearchGate and Academia.edu](image2)

As Thelwall writes, “scientists having one type of web presence were more likely to have another in many cases”. (Mas-Bleda, Thelwall, Kousha, & Aguillo, 2014) Of the 15 researchers with a Google Scholar profile, 13 also had a profile on ResearchGate; the same number of researchers had a profile on ResearchGate and Academia.edu. Twelve researchers had a profile on all three platforms (see figure 2).
Interestingly, the presence on online platforms does not seem to be age-related. The year of birth for researchers with profiles on all platforms ranges between 1956 and 1974.

The number of individual publications on Google Scholar varied between 20 and 345. On ResearchGate, researchers listed between 6 and 226 “research items”. On Academia.edu, between 5 and 200 items were listed.

3) How do the results compare to the TUM Department of Architecture?

Of the 29 professors at TUM, a few individuals are well represented in Web of Science and Scopus. Almost 50% (14 out of 29) have no publications at all in Web of Science or Scopus, with 5 researchers being represented with more than 10 publications in both of them (see figures 3 and 4)

![Figure 4: Number of TUM professors with publications in Web of Science compared to top institutions](image)

![Figure 3: Number of TUM professors with publications in Scopus compared to top institutions](image)
Regarding the presence on academic platforms, the findings were as follows: 2 professors have a profile on Google Scholar, 8 are on ResearchGate and 5 are in Academia.edu. Twenty-one out of 29 professors have no presence on any of these (see figure 5).

![Figure 5: Number of TUM professors in Google Scholar, ResearchGate and Academia.edu compared to top institutions](image)

4) Are there differences among the architectural sub-disciplines?

Among the different sub-disciplines, the number of items in Web of Science and Scopus varies significantly, as can be seen in figure 6. Researchers from group A (Architecture, Design and Arts) are less likely to have any publications in Web of Science, and only a small number of publications in Scopus, whereas researchers from group C (Building Technology) and D (Computation) are much better represented in both databases. The average number of items per person ranges from 2 (group A) to 30 (group C) for Web of Science and from 9 (group A) to 46 (group C) for Scopus.

![Figure 6: Sub-disciplines in Web of Science and Scopus](image)
Figure 7 shows the presence on Google Scholar, ResearchGate and Academia.edu. Researchers from group A are least likely to use academic networks to present their activities, whereas researchers from group B (Planning, Urban Studies, Landscape and Built Environment) are more likely to have a profile on these platforms.

Is there a correlation between the presence in databases and academic networks?

First, we investigated whether researchers with a high presence in databases are more likely to be present on academic platforms. I selected a group of researchers having at least 10 publications in Web of Science as well as Scopus ("high performer") and compared their number of profiles (on Google scholar, ResearchGate and Academia.edu) with the sample group from the top institutions. The results show that the group of high performers is more likely to have profiles on these platforms. As seen in figure 8, the majority of researchers (10 out of 18) with at least 10 publications in Web of Science and Scopus have a profile on all three platforms, compared to 12 out of 35 researchers from the sample group. On the other hand, there is a significant portion of researchers in both groups who don’t use any of the academic platforms.

Figure 7: Sub-disciplines on Google Scholar, ResearchGate and Academia.edu

Figure 8: Researchers with at least 10 publications in Web of Science and Scopus and their number of profiles on academic platforms
In order to investigate the inverse case, we assessed researchers with profiles on all three platforms and compared the number of publications in Web of Science and Scopus with the average number of publications across the sample group from the top institutions. The results show that researchers that are active on academic platforms are more likely to have a higher number of publications in the databases Web of Science and Scopus. As seen in figure 9, the majority of researchers have more publications in Web of Science (9 out of 12) and in Scopus (7 out of 12) than the average across the sample group from the top 3 institutions. There were only two researchers with a relatively low number of publications in Scopus and Web of Science.

Figure 9: Researchers with profiles on all three academic platforms and their presence in databases

6) What potential do academic networking sites offer to architectural researchers?

There are three main reasons for architectural researchers to join and use one or more academic platforms: visibility and Open Access, range of publication types and academic communication.

Visibility and Open Access

“...to avoid pay-walls, to be able to read papers by colleagues, as well as make all my papers accessible in one place.”

Academic networking sites offer a platform for individual researchers to present themselves and their research, as well as access to scientific papers. The profile page on all platforms includes certain aspects of a CV with a focus on requirements of academics such as research interests and author details. Papers and other forms of research output result in a list of papers, contributions or research items. It is possible to add links or upload full-text documents. Additionally, all platforms provide one or more metrics for the individual researcher and his/her output. In a survey by Springer Nature (Tina Harseim, 2017), 57% of the respondents said that they used some form of social media or collaborative networks to support their academic profiling or research promotion. In the same survey, more than 75% of respondents stated that they use social collaborative networks for discovering and reading scientific content, which makes these platforms a comprehensive source of freely available research output.

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4 Quoted from TUM researcher, translated by the author
For architectural researchers, whose work is less likely to be listed in the major scientific databases, the platforms offer the potential to present themselves and share their research activities in an academic context. Figures 10 and 11 show examples of researchers with just a limited number of publications listed in Web of Science and Scopus, but a significantly higher number of research items in ResearchGate. Additionally, Open Access affords increased visibility, usage and impact for their work.

**Publication types**

Academic networks offer a much broader range of publication types than Web of Science and Scopus, which are mainly limited to journal articles, proceedings/conference papers, reviews and book chapters. On Google Scholar, you can find any publication type as long as they are part of the Google Scholar database. On ResearchGate, it is possible to create projects as well as to add publications. Researchers can choose from an extensive variety of publication types: Article, Book, Chapter, Code, Conference Paper, Cover Page, Data, Experiment Findings, Method, Negative Results, Patent, Poster, Presentation, Raw Data, Research Proposal, Technical Report, Thesis, Working Paper. These can be assigned to a project or form a stand-alone research item. On Academia.edu, researchers can add published works or unpublished draft papers and choose one of the following types: papers, teaching documents, books, talks, drafts, book reviews, conference presentations or thesis chapters.

The range of publication types on academic networks are more germane to architectural research than in Web of Science and Scopus. Figures 10 and 11 show the range of publication types two individual researchers have listed on Web of Science, Scopus and ResearchGate. Professor A, though well represented with journal articles, also has a high number of conference papers and some books and projects listed on ResearchGate. Professor B, whose publications are less represented in Web of Science and Scopus, uses ResearchGate to present an extensive range of publications with mainly journal articles, books, data and conference papers.

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5 Other less listed document types are e.g.: editorial material, letters, notes, meeting abstracts, news items (Web of Science), short survey, book, editorial, note, letter, business article (Scopus)
Academic communication: Current awareness, Discussions, Open review

“Using Academia provided me with a whole new dimension of academic communication”<sup>6</sup>

All three platforms provide network facilities in different forms. On ResearchGate and Academia.edu, researchers can follow and can be followed by others. All connections are visible for other users. On Google Scholar, researchers can follow another person, but this is not visible on the page. Email alerts can be set up to receive notifications when new publications from researchers of the own network are listed or uploaded on the platform or about new publications that match interest areas or saved searches. ResearchGate is the platform that focuses most on academic communications with a feature called Q&A, where researchers can post questions and answers. It turns out that researchers also utilize the platform for discussions on different topics. Activity on this forum is rewarded with points for the ResearchGate score. Recently, ResearchGate and Academia.edu have introduced Open Review facilities. For architectural researchers, all these tools help them keep up to date in their research area and can enhance academic communication within their community.

Conclusion

Architectural researchers who are well represented in databases also tend to be well represented on academic platforms, and vice versa.

There are significant differences among the architectural sub-disciplines regarding the presence of publications in the databases Web of Science and Scopus as well as their presence on Google Scholar, ResearchGate and Academia.edu. Researchers from the Design area have hardly any publications in both databases or profiles on academic platforms, whereas researchers from the

<sup>6</sup> Quoted from TUM researcher, translated by the author
subject areas Building Technology and Computation are much more present in databases and active on academic platforms.

Academic platforms have the potential to improve the visibility of architectural researchers. As architects and their publications are less likely to be presented in the major scientific databases, the platforms offer the potential to present themselves and share their research activities in an academic context. Unlike the limited range of publication types in databases, researchers can list and upload almost any type of publication.

Implications at TUM
Based on these findings, the department of Architecture at TUM introduced a research support programme that comprises of four parts:

1. The department has developed introductory workshops on research strategies and publishing for architects. Further, workshops on bibliometrics and visibility, which are part of the library's IL programme, are highly promoted.
2. All publications of the department should be added to the TUM institutional repository “mediaTUM”, which is managed by the library. At the same time, the mediaTUM team works on improving the indexing by Google Scholar.
3. Academic Identity Management: all academic staff are required to create an ORCiD profile and at least one other germane to their research area. The bibliometric team of the library provides a coaching service for individual researchers or groups.
4. Publishing activities are encouraged by the department, and consequently demand for publication in the new TUM university press, hosted by TUM library, is high. Additionally, the department and the library plan to recommend those journals and book series in which TUM researchers tend to publish be indexed in Scopus.

Overall, intense collaboration between the department of Architecture and the library has been proven to be essential for the success of the department’s plans to improve the visibility of its research activities and to change its publishing culture to make it more open, international, and competitive.

References