Implementing Academic Analytics Data: Principles and Guidelines

Introduction

Analytics describing research activity, such as those produced by Academic Analytics, are powerful tools for university leaders to identify and enumerate strengths, promote institutional self-awareness, and build and maintain areas of excellence. As university leaders are aware, promotion of an institution's long-term interests requires a nuanced understanding of the strengths and limits of the analytic tools they use as well as a willingness to transparently communicate those strengths and limits.

University leaders have access to a wide array of information sources to inform their judgment as they implement the mission of their institution. Historically important channels of information, such as various forms of peer review, remain central. The availability of new analytical tools, however, offer complementary information to augment those existing channels with unbiased empirical evidence. These tools, taken as a whole, benefit administrators and faculty members by offering evidence-based perspectives on processes that are traditionally more subjective.

The following principles and best practices serve to guide the process of effectively and transparently integrating data sources such as Academic Analytics with traditional sources of information.

Guiding Principles

The principles listed below are informed by the Leiden Manifesto[1], a widely recognized set of standards to guide research evaluation articulated by participants at the 2014 International Conference on Science and Technology Indicators held in Leiden, the Netherlands.

1. *Disciplinary differences*
   Research and scholarly activity analytics systems should take into account complex disciplinary differences by providing data at the discipline level, using field normalized indicators where possible, and providing explicit acknowledgement of disciplinary biases in the system.

2. *Complementary methods*
   Those employing research and scholarly activity analytics in their decision-making processes should acknowledge the inherent simplification of indicators. Quantitative indicators should be used to complement, rather than replace, other forms of review that more fully contextualize the varied nature of academic performance. The tools, individually and as a whole, can help encourage administrators and faculty members to reach new levels of excellence. But, no single method should be the basis of decision-making.

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[1]Hicks D, Wouters P, Waltman L, de Rijcke S, Rafols I. Bibliometrics: The Leiden Manifesto for research metrics. Nature. 2015 Apr 23; 520(7548):429-31. DOI: http://dx.doi.org/10.1038/520429a.

3. *Incentive effects*
    Emphasizing research and scholarly activity analytics can encourage administrators and faculty within the university and the broader educational community. Users must understand and transparently communicate the ways these systems may favor certain publishers, publication types, or other output. Care should be taken to ensure that systems and practices that reward behaviors align with the values and mission of the institution.

4. *Accuracy*
    Research and scholarly activity analytic providers should maintain accurate data and transparently provide information on coverage, methodology, and data sources. To ensure the data provided are accurate, data from the system should be made available for validation with clear guidance about what users should, and should not, expect to find when comparing against other data sources.

5. *Transparency*
    Data describing individual faculty should be made available to the individual involved. Research and scholarly activity analytic systems should provide a process for individual-level data to be provided to the faculty member upon request, and the faculty should have an opportunity to correct factual errors.

6. *Communication*
    The use of research and scholarly activity analytics systems and the data they provide should be clearly articulated to stakeholders, and should reflect the institution's values and mission. These uses should be periodically reviewed, and any changes should be the result of open, transparent discussion.

Our Principles in Action

Academic Analytics has sought to assure that its data, analytical tools, and presentations embody these principles. To this end, we emphasize that our data, analyses, reports, and services embody the following qualities:

1. Academic Analytics captures only measures of research activity; other critical activities of faculty members are not measured, including teaching, service, and engagement.

2. In certain disciplines — especially the arts and humanities — there are forms of faculty scholarly activity that are not captured in the Academic Analytics database. These include residencies, exhibitions, and performances, as well as the research underpinning these activities.

3. When indices of research activity are employed, the components are weighted appropriately using discipline-specific measurements derived from nationally recognized sources.

4. Users of Academic Analytics data can customize metrics and weights to reflect their own understandings of the discipline, and to account for local variation from national discipline trends.

5. The Academic Analytics database provides the flexibility to select specific peer institutions appropriate to the analysis at hand.

6. Data are as comprehensive as possible based on constantly evolving information. Moreover, Academic Analytics tools facilitate inclusion of information most appropriate to address the question being addressed, such as which journal publications to specifically include or exclude in analyses of publication and citation activity.

7. All Academic Analytics data sources and the time periods covered are clearly identified, and extensive steps are taken to assure their accuracy, including how we disambiguate authors and investigators.

8. Academic Analytics does not limit sharing individual, faculty-level data within the institution.

Best Practices

The principles outlined above provide a general framework meant to inform the implementation of research and scholarly activity analytics systems. The following four strategies reflect best practices of leaders who have employed these systems to advance conversations about building and maintaining areas of excellence.

1. Be positive; the Academic Analytics database should not be deployed as a punitive tool to assess faculty members nor to deprive faculty members or units resources. Academic Analytics is most effectively used in positive ways. These include:

- Celebrating units and individuals when honorific awards are won, articles or books are published, and grants are secured.

- Identifying relevant grant opportunities for faculty members as part of the annual program review process.

- Identifying potential collaborators among individuals active in similar or compatible research themes on campus, nationally, or within a group of self-identified peer institutions.

- Enumerating individuals' interdisciplinarity and collaborative networks.

- Recognizing faculty excellence by identifying under-recognized faculty to nominate for prestigious national awards.

- Identifying and rewarding faculty members – using Academic Analytics data and institutionally developed data on teaching quality – who embody the combination of excellent teaching and research.

- Looking for opportunities to embed discussion of these uses in deans' and chairs' meetings and, when appropriate, faculty senate discussions. These conversations may spark substantive discussion and encourage teams to review established principles and objectives. They also ensure transparency and galvanize the community around constructive uses.

2. Balancing central and local decision-making: empower unit leaders to set the direction of data implementation efforts but control the pace. Find opportunities to engage local leaders at the college/school and department levels in the process of setting goals and empower them to take ownership of the institution's success. One example is to charge and empower deans to set the direction of data rollout efforts, including what metrics are included in college-level dashboards, and how the data are introduced to department leaders. Likewise, leaders can influence the pace of these efforts by establishing milestones for data integration with local data sources and key structural processes. The process engages deans in decision-making while ensuring progress toward institutional priorities.

3. Identifying structural processes where external data can be integrated and make explicit expectations for the use of such data. Create frequent opportunities to reinforce the role and value of tools such as Academic Analytics in combination with other traditional ones. Routine processes, including FTE allocation, annual unit review, deans' group meetings, and strategic planning are opportunities to use evidence-based tools in ways that do not involve decisions about individual faculty. Hence, data are used to enhance the fabric of decision-making at the institutional level. Crucial processes and conversations (such as promotion and tenure) are particularly sensitive and warrant additional discussion to determine whether and how the various tools can be used collectively. Transparency and open discussion about the expected use and value of these tools in these contexts may help alleviate concerns and create opportunities to articulate shared principles.

4. Being transparent and inclusive. Clearly communicate the process for systematizing use of evidence-based tools and metrics and include a diverse group of stakeholders. The process by which these tools are disseminated must be clearly understood by stakeholders across the institution and must embody their values and goals. Top-down edicts to use a particular tool without the consent or buy-in of those involved are typically met with suspicion and aggravated compliance. Identify relevant stakeholders and include them in the process based on institutional culture, precedent, and political and budgetary realities.