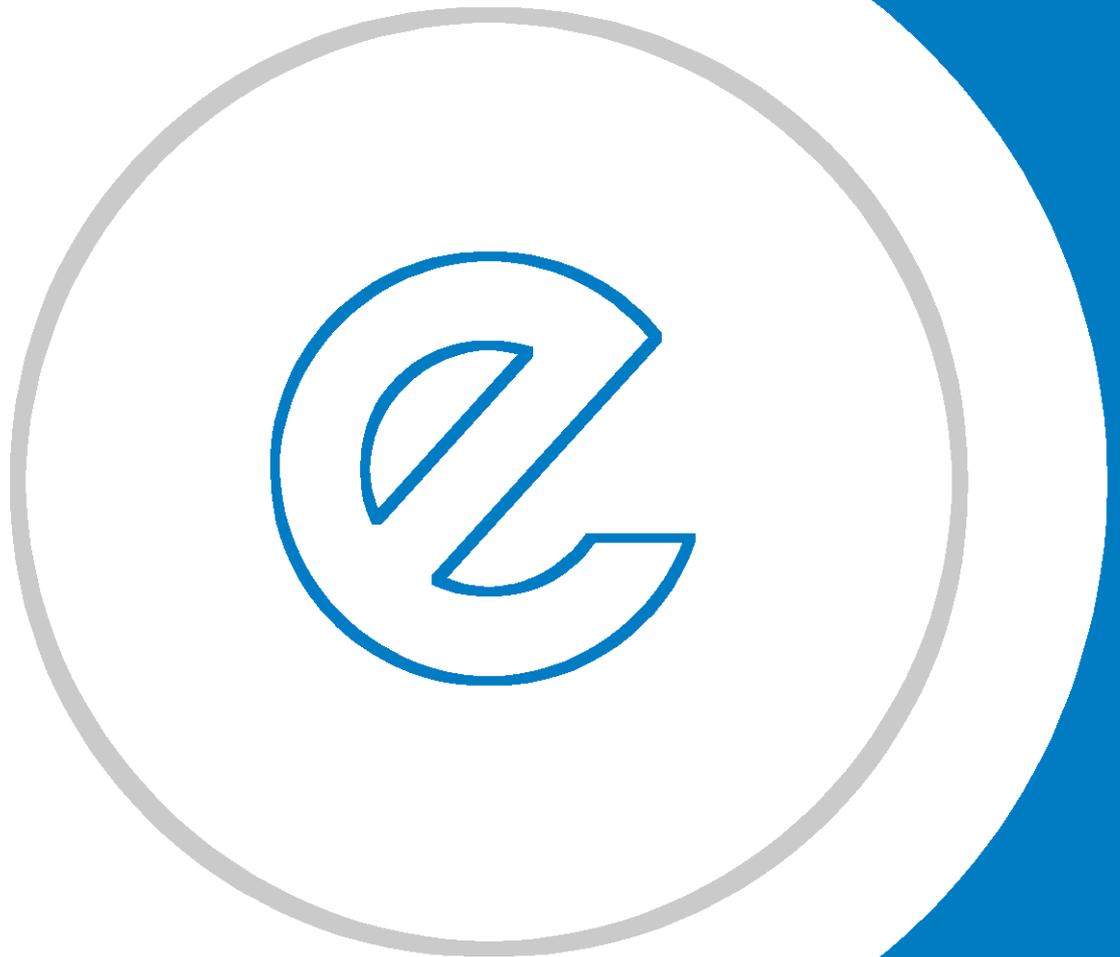


# Journal rankings and interdisciplinarity



## Introduction

Most of the European research stakeholders agree on the significance of interdisciplinary research. For example, the European Science Foundation stresses the overall difference when considering interdisciplinary research<sup>1</sup>, while the European University Association put an emphasis on the underlying risks: "...most research assessments as well as most high-impact journals remain discipline-based, which risks putting interdisciplinary research and researchers in an unfavorable position in terms of recognition."<sup>2</sup>

"Scientometrics is the study of measuring and analyzing science research. It is often done using bibliometrics which is a measurement of the impact of publications"<sup>3</sup>. The shortcomings of scientometric research are well known<sup>4</sup>. Recently, Eurodoc supported the San Francisco declaration on Research Assessment<sup>5</sup>, where it is recommended not to use journal-based metrics.

Researchers agree that interdisciplinary research should be evaluated with care<sup>6</sup> and urge research funders to take pay attention to the differences between interdisciplinary and mono-disciplinary proposals<sup>7</sup>.

Research projects that combine different perspectives should be published in interdisciplinary journals. However, interdisciplinary journals often do not have the same impact factors as their disciplinary counterparts. If a researcher chooses to publish in an interdisciplinary journal, he/she risks getting a lower profile and more limited dissemination of the work; while if he/she publishes in a disciplinary journal, he/she: a) might risk not being accepted and b) does not provide the emerging interdisciplinary field with results possibly important to the field's future development.

Interdisciplinarity Workgroup made a survey among junior researchers involved in interdisciplinary research asking "How does the interdisciplinary content of your research/thesis affect your choice of journals to publish in". The most common answer was: It is difficult to choose.

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<sup>1</sup> ESF, *European Peer Review Guide*, March 2011.

<sup>2</sup> EUA, *Report from EUA-CDE workshop: Interdisciplinary Doctoral Programmes*, January 25, 2013.

<sup>3</sup> <http://en.wikipedia.org/wiki/Scientometrics>

<sup>4</sup> Seglen, P. O. (1997). "Why the impact factor of journals should not be used for evaluating research", *BMJ: British Medical Journal*, 314(7079), 498.

<sup>5</sup> *The San Francisco Declaration on Research Assessment* (DORA).

<sup>6</sup> Lyall, Catherine, Joyce Tait, Laura Meagher, Ann Bruce and Wendy Marsden, "A Short Guide to Evaluating Interdisciplinary Research", SSTI Briefing Note (Number 9) March 2011.

<sup>7</sup> Wendy Marsden, Catherine Lyall, Ann Bruce and Laura Meagher (2011), "A Short Guide for Funders of Interdisciplinary Research", ISSTI Briefing Note (Number 8) March 2011.

Studies suggest that the use of journal rankings systematically disadvantages interdisciplinary research<sup>8</sup>. Yet, the expanded Shannon index<sup>9</sup> (an interdisciplinarity index) is able to show the institutions' research and education diversity.

## Recommendations

Based on this analysis, **EURODOC recommends** research assessors of institutions in the assessment of finished work to:

- **structure** publication timelines in the interdisciplinary doctoral programme and **define types of publications** (disciplinary or inter-, multi-, trans-, cross-disciplinary);
- **recognize interdisciplinarians' efforts in** finding a relevant interdisciplinary journals that cover two or more disciplines of interest;
- **develop** a distinct, clear and particular approach when deciding upon the **interdisciplinarity level** of a research publication;
- **limit the use of scientometric methods** while evaluating interdisciplinary publications;
- **consider alternative interdisciplinarity measuring devices:**
  - **use 2 or 3 complementary indicators**<sup>10</sup>, such as:
    - *Shannon entropy*,
    - *Simpson diversity* and
    - *generalised Stirling*.

Multiple measures indicate the attributes of diversity:

- variety (number of disciplines),
- balance (evenness of distribution) and
- disparity/similarity (degree of difference).

All of them should display the same general trends in the case of interdisciplinarity.

Above indicators can be applied to all kinds of interdisciplinary research, e.g. social sciences, natural sciences, environmental science etc. Eurodoc recommends the formerly mentioned, **newest interdisciplinary system**. The system has been tested on **Innovation Studies Units**: ISSTI (Edinburgh), SPRU (Sussex), MIOIR (Manchester), **Business and Management Schools**:

<sup>8</sup> Ismael Rafols, Loet Leydesdorff, Alice O'Hara, Paul Nightingale, Andy Stirling, "How journal rankings can suppress interdisciplinary research: A comparison between Innovation Studies and Business & Management", 18 April 2012.

<sup>9</sup> DEA / FBE, "Thinking across disciplines - Interdisciplinarity in research and education", August 2008.

<sup>10</sup> Ismael Rafols, Martin Meyer, "Diversity and network coherence as indicators of interdisciplinarity: case studies in bionanoscience", Hungary 2009.

Imperial College, WBS (Warwick) and LBS (London) and  
**Hungarian Research Organizations** (HROs)<sup>11</sup>.

Bibliometrics are still used by many stakeholders. Eurodoc agrees that the method is valuable, but it has limitations when interdisciplinary research is considered. Therefore, we urge research evaluators to use **flexible assessment techniques** that recognize the special benefits and requirements particular to interdisciplinary research.

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<sup>11</sup> <http://hps.elte.hu/~gk/Papers/Soos-Kampis.pdf>