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A ranking of safety journals using different measurement methods

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ABSTRACT

Using an online survey, we asked safety researchers around the globe how they perceived the quality of a list of 35 representative safety journals. We found that the most well-respected journal by expert opinion was the Journal of Loss Prevention in the Process Industries. However, taking both the respondents' results and the citation-based results into consideration, the Journal of Hazardous Materials is the most influential journal, followed by Reliability Engineering and System Safety, Risk Analysis, Accident Analysis and Prevention and Safety Science.

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1. Introduction

Many academic journals exist and it can be quite difficult to gain notion of the relative quality of any journal compared with other journals in one research field. This is certainly also the case in the field of safety research. Many safety-related journals are available and publishing in one journal may be regarded as more important by peers, or may have a higher research impact, than publishing in another journal. To help authors and readers of state-of-the-art safety research and recent safety studies to decide which journal to publish in or simply to read, a variety of journal quality assessment methods have been developed. The most well-known method is undoubtedly the so-called 'journal impact factor' (or ISI impact factor) published by Thomson Scientific. The ISI impact factor is a quantitative instrument to evaluate scientific journals, determined by the average number of citations to an article published during the 2 years preceding the year in which the impact factor is being calculated. The more articles from a certain journal are cited, the higher its impact factor. It is common knowledge in the scientific research community that journals with high impact factors are perceived as more important than those with lower or no impact factors. Moreover, this performance measure is also regularly employed by universities, public and private research foundations, and various institutions to assess researchers, research projects, research proposals (and their teams), etc. Hence, publishing in scientific journals with high impact factors is, amongst others, important for the esteem and making promotion in the academic world, as well as in some industrial settings, and it is also essential for decision-makers deciding about research funding. The importance of the latter factor may be reflected into the knowledge that decisions affecting hundreds of millions of euros for research purposes worldwide at least partially depend on impact factor assessments. Therefore, it is an interesting exercise to compare the impact factor ranking with other measurement methods and evaluate whether the impact factor is an adequate proxy of journal quality.

Several studies concerning the use and the design of impact factors, their improvement and conceptual modeling have been performed. The reader is for example referred to Yue and Wilson (2004), Moed (2005), Frandsen et al. (2006), Kodrzycki and Yu (2006), and Egghe et al. (2007).

Overall, it should be noted that assessing and ranking journals is a difficult task, since journal quality is composed of different domains. Roughly, either the number of citations (as mentioned in the paragraph before), or expert perceptions, are used to rank journals. This paper investigates and compares these two types of ranking. Such an exercise is interesting, since authors' expert opinions may be different from the 'generally accepted' citation-based assessments to take decisions for evaluating researchers, authors, projects, etc. After all, assessments might not only want to take objective output-related concepts such as the volume and intensity of citations into account, but also subjective opinion-related factors (Rousseau, 2008). This way, a more correct picture of the true

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quality of a safety-related journal is acquired. For example, some journals are more industry-oriented and therefore do not display high impact factors but are very highly regarded by the readership of safety journals, whereas other journals may display high impact factors, but are hardly read and/or appreciated by safety experts.

This article uses a survey to identify researchers' perceptions on the quality of safety journals. The Spearman's rank correlation test is used to this end. We also controlled for a potential bias, caused by the relative representation of the different nationalities (Europe, North-America and the Rest of the World). Furthermore, our paper investigates the level of correlation between the expert opinions rankings and the ISI impact factors rankings.

2. Methodology

Based on internet and literature, a list of safety journals was drafted. We limited the list to journals which are situated within the same research field, that is general safety journals and process safety journals, for the respondents of the survey to be able to compare them. For example, food safety journals or IT safety journals were not included in the list. The safety journal list is given in Table 1.

Table 1 also displays the 2009 impact factor, as well as the 5-year impact factor of the journals. The journal's abbreviation used throughout this article, is provided in the list.

Authors that published in any journal of the list 2 years prior to the study, were seen as possible respondents of the survey. A database of electronic author addresses (available online) was then composed, whereby authors could be linked to universities, research centers, industry, etc. The survey was electronically sent on 22 November 2010 to 826 researchers spread out all over the world. Table 2 illustrates the distribution of survey copies sent out in the world.

Table 2
Distribution of survey copies sent out worldwide.

	Number of e-mails sent (absolute number)	Share of total (%)
Africa	7	00.84
Asia	149	18.04
Europe	312	37.78
North-America	321	38.86
Oceania	26	03.15
South America	11	01.33
Total	826	100

To increase the response rate of the survey, a reminder was sent on 14 February 2011. The respondents were asked to indicate for 35 journals (see Table 1) whether they considered the journal to belong to the top or subtop in the field of safety. We did not include an explicit definition of what constitutes a top or subtop journal and thus allow each expert to form his/her own opinion. This is standard practice in perception-based studies since these differences in opinion are exactly what such studies wants to uncover. The respondents needed to assess journals with a score of 1 ('Top'), 2 ('Subtop'), or 3 ('Other').

3. Results

The results of the survey are presented in this section. On March 15, 2011, 68 answers were received, representing a response rate of 8.23%. In spite of the initial expectations and novelty of Web-based surveys that led to high response rates (in many cases much higher than traditional survey methods such as postal or telephone

Table 1
Safety journal list used in the survey.

Journal	Abbrev.	5-year Impact factor	
Accident Analysis and Prevention	AAP	1.647	2.167
American Society of Safety Engineers Journal	ASSEJ	–	–
Chemical Engineering Progress	CEP	0.515	0.415
Chemical Health and Safety	CHS	–	–
Clean Technologies and Environmental Policy	CTEP	1.016	–
Disaster Advances	DA	0.138	–
Disaster Prevention and Management	DPM	–	–
Ecotoxicology and Environmental Safety	EES	2.133	2.674
Environmental Health Perspectives	EHP	6.191	7.103
Environmental Progress and Sustainable Energy	EPSE	–	–
Fire Safety Journal	FSJ	1.259	1.384
Health, Risk and Society	HRS	1.328	1.588
Human and Ecological Risk Assessment	HERA	1.528	1.311
International Journal of Emergency Management	IJEM	–	–
International Journal of Environmental Health Research	IJEHR	1.066	1.214
International Journal of Environmental Research and Public Health	IJERPH	0.781	0.790
International Journal of Reliability, Quality and Safety Engineering	IJRQSE	–	–
International Journal of Risk Assessment and Management	IJRAM	–	–
Journal of Cleaner Production	JCP	1.867	2.105
Journal of Contingencies and Crisis Management	JCCM	–	–
Journal of Environmental Health Research	JEHR	0.817	0.812
Journal of Hazardous Materials	JHM	4.144	4.360
Journal of Loss Prevention in the Process Industries	JLPPI	0.810	1.014
Journal of Occupational Safety and Ergonomics	JOSE	0.407	–
Journal of Risk Research	JRR	0.569	0.987
Journal of Safety Research	JSR	1.340	1.617
Open Occupational Health and Safety Journal	OOHSJ	–	–
Process Safety and Environmental Protection	PSEP	1.124	1.019
Process Safety Progress	PSP	0.452	0.541
Professional Safety	PS	–	–
Reliability Engineering and System Safety	RESS	1.908	2.305
Risk Analysis	RA	1.953	2.474
Risk Management	RM	–	–
Safety Science	SS	1.220	1.426
Stochastic Environmental Research and Risk Assessment	SERRA	1.419	1.395

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