Editorial

Whither research integrity? Plagiarism, self-plagiarism and coercive citation in an age of research assessment

A B S T R A C T

This extended editorial asks whether peer-review is continuing to operate effectively in policing research misconduct in the academic world. It explores the mounting problems encountered by editors of journals such as *Research Policy* (*RP*) in dealing with research misconduct. Misconduct can take a variety of forms. Among the most serious are plagiarism and data fabrication or falsification, although fortunately these still seem to be relatively rare. More common are problems involving redundant publication and self-plagiarism, where the boundary between acceptable behaviour (attempting to exploit the results of one's research as fully and widely as possible) and unacceptable behaviour (in particular, misleading the reader as to the originality of one's publications) is rather indistinct and open to interpretation. With the aid of a number of case-studies, this editorial tries to set out clearly where *RP* Editors regard that boundary as lying. It also notes with concern a new form of misconduct among certain journal editors, who attempt to engineer an increase in their journal's 'impact factor' through a practice of 'coercive citation'. Such problems with research integrity would appear to be unintended, and certainly undesirable, consequences of the growing trend to quantify research performance through various indicators.

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1. Introduction

The academic community has long cherished a belief in the effectiveness of self-policing in maintaining the norms of research integrity in 'the Republic of Science' (Polanyi, 1962; see also Martin, 2012). Other professional communities have operated on a similar basis, at least until recently – for example, accountants, doctors, journalists and politicians. However, a succession of scandals over the last decade or so has challenged our assumptions about the efficacy of self-policing in these communities, often resulting in the imposition of new regulations, procedures and oversight bodies.

Where do matters currently stand in the academic community? Are peer-review and other self-policing mechanisms still succeeding in keeping research misconduct at bay? Many would sincerely hope so. After all, the academic profession supposedly has strong, clear norms about research integrity and ethical behaviour. Academics go though a long period of apprenticeship, during which these norms are meant to be firmly inculcated. In addition, the ongoing processes for the judgement of papers, research proposals and promotions through peer review surely afford ample opportunities for miscreants to be caught and their behaviour corrected. Moreover, not only are the risks of being caught high (or so it is generally assumed), but there are also severe sanctions available to impose on those found guilty, including the rejection of papers submitted for publication, the retraction of articles already published, the revoking of research funds, and even the dismissal of individuals in the more extreme cases, not to mention the stigma of moral opprobrium for those caught transgressing.

In the light of all this, there are doubtless many academics who continue to believe that research misconduct is rare and generally small scale, that it is easily detected, investigated and judged, and that it is kept firmly in check by the vigilance of peer-review and the severity of the sanctions that can be imposed (Martin, 2012). While recognising that some research misconduct unfortunately does takes place, most scholars seem to blithely assume that it is confined to junior researchers (who have not yet completed the process of socialisation and inculcation of norms) and to researchers in 'other' countries where perhaps there are different conventions regarding what constitutes appropriate and inappropriate research conduct.

Yet we know the pressures of academic competition are rising, whether for tenure, research funds, promotion or status, which may mean that more researchers are tempted to cut corners (Brice and Bligh, 2004; Casadevall and Fang, 2012). The use of performance indicators based on publications, citations, impact factors and the like may also be adding to the temptation to stray from previous conventions regarding what constitutes appropriate research behaviour or to attempt to surreptitiously 'stretch' the boundary between appropriate and inappropriate behaviour. Are the existing checks and balances operating in academia managing to restrain these temptations? Or is some reinforcement of those mechanisms required?

There are worrying signs that research misconduct is on the increase. The number of retractions of published papers by journals has increased more than 10-fold in a single decade – from around 30 a year in the early 2000s to some 400 in 2011 (Van Noorden, 2011; see also Steen, 2011; Zimmer, 2012). Moreover, the

majority of retractions are seemingly the consequence of research misconduct rather than simple error (Fang et al., 2012). Furthermore, top journals are not immune, with _Proceedings of the National Academy of Sciences_ making no less than eight retractions in 2011 and _Science_ five.[1] Indeed, Fang and Casadevall (2011, p. 3855) find that the frequency of retraction "shows a strong correlation with the journal impact factor".[2] According to a recent meta-review, while only 2% of authors confessed to having fabricated or falsified data, 34% admitted to "questionable research practices", while 14% knew of colleagues who had fabricated data,[3] and no less than 72% were aware of questionable research practices among their colleagues (Fanelli, 2009).[4] With regard to the particular problem of self-plagiarism and related activities described below, the number of academic articles referring to 'self-plagiarism', 'salami publishing', 'redundant publication' or 'duplicate publication' has risen nearly five-fold from 170 in 2000 to 820 in 2012.[5] More and more editorials[6] are appearing in which journal editors complain about the growing burden being imposed on them as they attempt to detect, evaluate and sanction research misconduct in its various forms.

This extended editorial has several purposes. The first is to report the experiences of one journal, namely _Research Policy_, over the last three years, exploring whether the assumptions outlined above about the supposed efficacy of peer-review and self-policing in keeping research misconduct in check do indeed stand up to scrutiny. A second aim is to 'draw a line in the sand' – to set out clearly and explicitly, with the aid of specific examples, what the Editors of this journal, at least, regard as the boundary between appropriate and inappropriate research behaviour so that there is minimum ambiguity to be exploited by less scrupulous authors. A third objective is to consider whether the growing tendency to quantify research performance and subject it to assessment based on indicators may be having a deleterious impact on the research behaviour, integrity and morality of researchers. Lastly, the attention of the wider academic community is drawn to a worrisome tendency among the editors of certain journals to engage in a practice of 'coercive citation' to bolster the impact factor of their journal. Editors who resort to such underhand practices will inevitably be perceived as lacking the moral authority necessary to discipline other authors engaging in misconduct.

In Section 2, we set out the background to these problems. Section 3 describes the experiences of _Research Policy_ with cases of plagiarism since the notorious Gottinger saga in 2007 (Martin et al., 2007), while Section 4 deals with problems relating to 'salami pub-

lishing', redundant publication and self-plagiarism. Possible factors underlying such instances of misconduct are analysed in Section 5. Section 6 shifts the focus from misconduct by authors to that by journal editors intent on raising their journal impact factor through fair means or foul. The final section summarises the conclusions to emerge from this examination of the problems of research misconduct.

2. Background

Prior to 2007, _Research Policy_ Editors came across only the occasional problem of research misconduct. Where such problems did arise, they were mostly handled very discreetly through confidential discussions between _RP_ Editors and authors. Only rarely did the issue become public.[7] All this changed in 2007, when a PhD student[8] alerted the Editors to the fact that _RP_ had published a paper in 1993 that was based almost entirely on plagiarism of a 1980 article in another journal. This quickly proved to be the tip of an enormous iceberg, with the individual involved having made up institutional affiliations for over 20 years as well as engaging in a dozen or more acts of blatant plagiarism over his 30-year career. Because there was no suitable institutional employer to conduct the investigation, this was carried out by _RP_ Editors in conjunction with the journal _Nature_, with the findings being published in August 2007 (Martin et al., 2007; Abbott, 2007). However, somewhat to our surprise and consternation, that was not the end of the matter, with the culprit continuing in his misdeeds for several more years (Abbott, 2008; Martin, 2012).

Following that, a number of other, lesser cases of research misconduct were brought to our attention over the following year. In a 2009 _RP_ Editorial (Martin et al., 2009), we therefore included a section specifically on 'avoiding research misconduct', and warned that _RP_ was taking matters of research integrity very seriously. We identified different types or levels of misconduct ranging from 'salami publishing' to self-plagiarism to outright plagiarism, and set out clear guidelines and rules. In particular, we stated that, if authors were in any doubt about such issues as what constituted 'prior publication', they should ask the _RP_ Editor involved for advice or a ruling. We also reminded referees and other readers that, if they have reasonable suspicions about the integrity of a paper, they have a responsibility to draw these to the attention of the journal editors or other relevant authorities.

What has happened since? Is the academic community, through the collective efforts of referees, editors and others, managing to keep research misconduct in check? Or are the problems continuing to escalate? As we shall see, it is gratifying that an increasing number of referees are willing to draw instances of misconduct to the attention of _RP_ Editors. However, a few authors have apparently not heeded the advice and warnings given – hence, this editorial.

3. Plagiarism

Let us look first at the more serious offence of plagiarism, an offence that is also simpler to define than self-plagiarism (which is dealt with in Section 4). Plagiarism can be defined as "the copying

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[1] See http://retractionwatch.wordpress.com/2011/12/30/the-year-of-the-retraction-a-look-back-at-2011/ (accessed on 11 February 2013). Retraction Watch provides a reasonably comprehensive blog where the latest cases of retraction are reported and discussed.

[2] At first sight, this might be seen as implying that high-impact journals are afflicted to a greater extent by research misconduct. However, a more plausible explanation is that such journals are more likely to have an explicit research misconduct policy and associated procedures in place (Resnik et al., 2009, 2010).

[3] Similarly, a recent survey of several thousand medical researchers found that "13% of these researchers admitted knowledge of colleagues 'inappropriately adjusting, excluding, altering, or fabricating data' for the purpose of publication" (Tavare, 2012).

[4] In a survey of economists, Feld et al. (2012) found rather higher figures, with serious research misconduct (e.g. data fabrication or plagiarism) being reported as being present in 4% of all research, and no less than 60% of individuals engaging in "questionable research practices". Similarly, a survey of the management departments of American business schools by Bedeian et al. (2010, p. 719) revealed that 86% of respondents reported knowledge of faculty who had "published the same data or results in two or more publications". And in Australia, Bretag and Carapiet (2007) found that 60% of a random sample of social scientists and humanities scholars had committed self-plagiarism in one or more of their publications.

[5] Search on Google Scholar using these terms and conducted on 8 February 2013.

[6] See Robinson (2012, p. 2), who cites a large number of examples, as well as the bibliography at the end of the current article.

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[7] One exception involved an allegation that the authors of an _RP_ paper, in using the concept of 'innovative capacity', had failed to cite what was claimed to be the paper that was the original source of this concept. However, thorough investigation by _RP_ Editors (not once but on two separate occasions) revealed that the concept had been used on many previous occasions, and there was no particular reason to assume that it should be credited uniquely to a single author or publication (Martin, 2010, p. 1445, footnote 21; see also Prosser, 2010).

[8] The PhD student chose to remain anonymous, fearful that the act of 'whistle-blowing' could have adverse consequences for her/him personally – a sad reflection of the situation in which researchers now operate.