

Small science journals: keep alert on potentially dangerous information

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Abstract. - Bioterrorism has become a key subject in global communication, forcing the scientific community to urgently deal with problems of security and publishing of potentially dangerous information. This short note suggests that while editors of big science journals, supported by a rigorous peer-review system, seem to be generally aware of security implications and how to handle them, greater attention to security issues should be paid in the editing of small science journals and of institutional reports as well, where sensitive information is more likely to be published. Some practical suggestions are also recommended to help evaluate when the potential harm of publication outweighs its benefits and therefore a submitted paper should be modified or even not published.

Introduction

Not a day goes by without the subject of terrorism being mentioned in the press, mass-media or other form of public health public communication. Themes and terminology such as bioterrorism, security concerns, potential misuse of scientific discoveries, weaponising anthrax or small-pox have become common-place in our daily routine especially whenever an act of terrorism occurs.

The phenomenon of terrorism has become a key subject in global communication. At different rhythms it has forced Governments to implement security legislation, the general public to change or adjust their behaviour to new rules and procedures, intellectuals and historians to ask themselves about the causes of terrorism which is ever increasingly escaping from any form of standardized classification.

Some interesting questions arise: When did the scientific community perceive this phenomenon and understand that it can no longer consider itself exempt? In which way has or is it facing up to this? How important has the threat been considered at international level and more importantly at local level? What measures have been studied and implemented to contrast this threat? These are the questions upon which the scientific world is reflecting; delicate themes that academic and scientific societies along with those entities charged with public security are discussing in depth.

In addition, the online availability of most science journals as well as many institutional reports makes the protection of sensitive data even more difficult and the fact that online access to journal articles is often restricted (a registration or payment may be required) does not represent a major hindrance for potential terrorist looking for “useful information”.

If Internet favours the dissemination of sensitive data and information, the editorial responsibility in publishing them is ever increasing.

Furthermore, institutional repositories are rapidly developing all over the world under the impulse of the Open Access Movement (www.soros.org/openaccess/read.shtml). The information contained in open access archives may represent an even greater threat in terms of security for various reasons: they can host preprints, self-archived material, articles which have not been evaluated or refereed, and last but not least their access is free and unrestricted.

The Statement on Scientific Publication and Security: big journals take action

In February 2003 some researchers, representing prestigious universities and professional associations along with the editors of over 20 international science journals signed, under the name of “Journal Editors and Authors Group”, a *Statement on Scientific Publication*

and Security (1) which was published simultaneously in many of the journals involved (including *Journal of the American Medical Association*, *Nature*, *New England Journal of Medicine*, *Science*) often accompanied by editorials and comments (2).

The *Statement* which is divided into four parts is preceded by a Preamble where the importance of the scientific publishing process is underlined: it allows and ensures the dissemination of that scientific knowledge which is crucial to the society since it improves the human condition in a myriad of ways. However “new science, as we all know, may sometimes have costs as well as benefits” (1). Starting from here and under the urgency of dealing with terrorism the four parts of the *Statement* were conceived. These can be briefly summarized as follows: i) protect the integrity of the scientific process; ii) understand the need to urgently face up to terrorism and security; iii) find new processes for the control and review of scientific papers before their publication; iv) avoid publication of papers if deemed by the editor to be potentially dangerous.

As was expected, this *Statement* raised considerable clamour and also negative comments. Principles of Ethics and academic freedom (3) were called upon, the potential danger of “censoring science” was raised (4-6) and it was also noted how the *Statement* basically failed to provide clear guidelines for the editors (7).

Regardless of any just consideration on the correctness and potential effectiveness of this *Statement*, undoubtedly it was a necessary step by the scientific editing community in answering terrorism and a first step in trying to lay the foundations of the undefined boundaries between freedom and security, between replication of experiment’s results and potential misuse, legitimacy and harm.

Security concerns and small science journals

It might be necessary to again look at the aspects of security in scientific editing with greater incision. It may be even more important to pose the question about the publishing

or not of papers containing “sensitive” information directly to the players (editors, referees and authors) not so much of the big journals (internationally known journals with high Impact Factor, IF) but the so called small journals, namely science journals distributed at national and even local level, still striving for their visibility in the scientific world (8).

It is these latter that should be educated, made aware and guided along these themes. This for at least two reasons:

1) the peer review system used by less prestigious journals is far less selective and rigorous compared to that in use by journals with higher refusal levels. E Wager *et al.* have defined this approach as “bottom-up” (9). Their philosophy is to accept anything that “meets their minimum standard” (9). Therefore it is more likely that articles with potentially dangerous information might evade the control of the reviewer and/or of the editor, who often learnt their trade “on the job” and also work under the pressure of the “publish or perish” principle (applicable both to authors and journals);

2) original articles that report results relating to innovative techniques, important scientific progress or discoveries would unlikely be published in journals with no or limited IF, however it is in these that articles giving precise and detailed descriptions of events or places and known methodologies and techniques as to allow their reproduction even by those not trained could be accepted for publication.

Learning from a practical experience

The experience of the authors of this brief note have led them to ponder this issue. The recent publication of two articles within a short period, one in a quarterly science journal (*Annali dell’Istituto Superiore di Sanità*) and the other in a series of institutional technical reports (*Rapporti Istisan*) attracted their attention. Both publications are edited by the Istituto Superiore di Sanità (National Institute of Health, ISS, Rome - Italy).

The first article, on risk assessment in nuclear facilities was based upon a hypothetical severe accident occurring in a non-operational nuclear power plant or in other nuclear facilities (provisional radioactive deposits, research centres, spent fuel storage pools). The radiological impact and emergencies were also evaluated. Here one of the referees highlighted the paper's potential danger and suggested to revise the article, change the title slightly, avoid naming and localizing sites on the national territory and delete all those elements (including a certain terminology) which could attract the attention of malicious persons.

The second was a technical report, dealing with operating strategies and effective measures to prevent potential terrorist attacks through waterworks system. The report contained detailed information also on substances which could be hazardous to public health. Here it was not the referee (since the publication is not peer-reviewed) but the editorial staff who reported the question to the authors. A useful exchange of opinions followed between the researchers and editorial staff which led to a change in the title of the report aimed also at reducing the risk of retrieval by Internet surfers using search engines.

Some useful hints and suggestions

Greater attention to security issues should be paid not only to small science journals but also to the so-called grey literature, which though not commercially published and generally printed in limited number of copies, is now often freely available online mostly through institutional websites. It contains specific and detailed information usually not subject to the peer review process and whose responsibility falls under authors, editors and issuing organizations.

Even in the absence of peer review, however, the institution's responsibility cannot be disregarded. The editorial staff inside the institution or those who are responsible for the

editorial policy should advise authors on the potential risks of spreading sensitive information. While big journals editors and reviewers are generally aware of security implications which lie behind the publication of potentially dangerous data, authors of grey literature or small journals often disregard them.

Some practical suggestions for editors of small journals or institutional reports could be: a) consider in depth these aspects whenever evaluating manuscripts for publication; b) share this responsibility with others (co-editors, editorial staff, colleagues, authors, research leaders etc.); c) include in the Instructions to Authors and in Guidelines to Referees, if any, a specific reference to this issue, for instance a question such as “Does this paper contain any sensitive data?” could possibly be added; d) conceive in-house procedures, to be periodically revised, for the definition of criteria to help editors to evaluate when “the potential harm of publication outweighs the potential societal benefits and therefore decide that “under such circumstances, the paper should be modified or not published” (1).

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