

Qualitative Study to improve integrity of NET : Perspectives of Peer review and Authorship in research ethics

Hyuk Kwon*, Byung Joo Min
KAERI, Duckjin-dong, Yuseong-ku, Daejeon, 305-353, Korea *

1. Introduction

After Dr. Hwang's Human embryonic stem cell scandal, research ethics stood out as the hot issue in both Korean scientific circles and general public [1]. Science Publishing Group referred the limitation of peer review system and the absence of responsibility of author to one of the causes for the scandal [1]. In order to prevent a similar fraud, Ministry of Science and Technology(MOST) established guidelines for research ethics and integrity in 2006. The guidelines included fabrication, falsification, and plagiarism(FFP) and unfair authorship. MOST committed the authority of administration and supervision to the society and the institutes of research to preserve the research integrity. The society and institute are charged with overseeing the implementation of enacted ethics guidelines.

SCI(Scientific Citation Index) holds the guideline of research ethics and canon of the society which were crafted in order to guaranty the integrity and quality of the research. The publication policy pertains submission of articles, authorship and responsibilities of a reviewer. Societies pay attention to the peer review policy because the quality of articles is strongly dependent on the peer review [2]. Nuclear Engineering and Technology (NET) is the journal of Korea Nuclear Society(KNS). NET is registered with SCIE(Science Citation Index Expanded), recently[3]. In addition to the growth in external circulation, the improvement of quality requires the effort of the society to establish a strict peer review system and a fair authorship.

The qualitative study on peer review and authorship of NET was put into force to improve the quality of NET. Based on studies and suggestions, the policy focuses on research ethics to improve the integrity of NET.

2. Ethical Issue of Journal Policy

Range of research ethics yields broad spectrum from the pure philosophy to the practical parts such as publication. In the broad spectrum, this study is focused on the relatives for the publication policy of NET and the guideline of MOST. Misconduct defined by MOST borrows both from US and European norms. US constrict only FFP that is legally well defined on the ground of preponderance of evidence. On the other hand, Europe considers misconducts as obstacles to good scientific practices. In Europe misconduct includes FFP, improper authorship, conflict of interest and questionable data management.

In this section, NET is considered from the stand point of the authorship and peer review, because they are the most important part on the publication.

2.1. Authorship

The authorship of a journal article is an honor that a researcher obtains from the fulfillment of his research. Recently, a number of papers (recorded) reported that the first author is the critical bases to assess and to estimate the quality of the researcher. The authorship can cause problems which are strongly related to the research career and funding.

In the case of the stem cell scandal, coauthors shirked the responsibilities for the integrity of the research, and this case is the typical of an improper authorship. The major researcher was not the first author and the credit usurped by better know members. Improper authorship, such as in the stem cell case, reduces the accountability of the quality of articles and, by extension, is the main cause for its evasion[5]. The authorship policy of Nature and Science, for example, exists to strengthen the integrity of the research.

Nature recommends the detail description on the author's contributions to an article. Additionally, financial, technical and other supports should be well described in the acknowledgement. Apparent credits of contributions of author can function as the protection of the first author's right and the reduction of honorary authorship[6]. General policy of authorship established by Vancouver group and by Medical Journal Editors are deemed good ones to emulate[7]:

- Substantial contributions to conception and design, or acquisition of data or analysis and interpretation of data,
- Drafting the article or revising it critically for important intellectual content,
- Final approval of the version to be published.

These policy should induce the proper and fair authorship by deriving the discussion and agreement of research group members[5-7].

Most of the authorship policy of the journals has a limitation on qualitative guideline. QUAD(Quantitative Uniform Authorship Declaration) is suggested to quantitatively estimate the contribution of each authors[8]. In QUAD, authors would usually be listed in descending order of total contribution across all four categories. The system permits the reader to identify

*Present e-mail Address: kwonhk@kaeri.re.kr, (phone: 82-42-868-4809)

who contributed what, rapidly and easily. It should also discourage distortions of authorship by coauthor and help reduce the numbers of honorary authorships.

In NET, authorship policy does not appear explicitly[3]. That is an implicit meaning that authorship is totally abdicated to the responsibility of each research team.

2.2. Peer Review

Research results in scientific societies are self-corrected and regulated through following 3 steps.

- Peer review : Funding
- Referee system : Reviewing
- Replication : After publishing

Among the 3 steps, the peer review plays the key role to conserve the integrity of science. Responsible peer review begins with the commitment by referees. The instruction is generally included as follows[5];

- Conflict of interest between reviewer and author,
- Professional knowledge of the area,
- Objective reviewing,
- Confidentiality until published.

Conflict of interest between the reviewer and author may lead to such misconduct such as the Vijay R. Soman and Philip Felig case[9]. Soman and Felig obtained core information from original paper by H. W. Rodbard and delayed publication of the paper. Given the Soman case, if confidentiality and conflict of interest are clearly defined, the authority of the journal and credits to the author would not have been damaged.

Another issue of peer review is for the selection of ad hoc reviewer. Editorial board generally selects the ad hoc reviewer from the professional pool to review the related research articles. The system occasionally skips the screening process of ad hoc reviewer due to the insufficient number of personnel.

Reviewers are given checklist to assist the objective and unbiased review by KNS. But an ethical instruction was not required of the reviewer.

3. Suggestions for NET

In the web-site of KNS, there is only instruction for publication of the journal. After establishment of research ethics guideline of MOST, ethics guideline is not a choice but a necessary condition. KNS is required to enact the guideline including following elements:

- Role and ethical canons of nuclear engineer,
- Ethical guideline of peer review and authorship and
- Rights of editor for the research misconduct.

To improve the integrity of NET, supervising of peer reviewer policy should be tightened. Selected reviewer should comply with obligations in instruction and clearly define interests with author. MOST recommends description of authorship policy because of protection of rights of junior researchers. Therefore, KNS has the duty to enact the authorship policy that protects the rights and credits of honest nuclear engineers.

4. Conclusion

The value of journal and society should not be estimated quantitatively. Rather a quantitative estimation is tried using the tool of SCI (by pressing the intensely competitive atmosphere). KNS is struggling to evaluate not only internal quality such as austerity of review and internationalization of reviewer but also external quality that is refurbishment of KNS office, online submission, and adoption of extended abstract as an proceeding paper. The effort of KNS may need to bear the fruit beginning year, 2008.

In company with the external evaluation, guidelines of research ethics are required to evaluate the integrity of journal and prevent misconducts before they occur. Among proposed ethical issues, peer review and authorship are the core issues to secure the integrity.

KNS, therefore, is required to enact appropriate ethical guidelines within agreement of KNS members and editorial board in the near future.

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