

## RESEARCH ETHICS OF SMVITM

Maintaining integrity in research is very much essential. Every institution need to have the guidelines which provide positive orientation for maintaining integrity in research. The ethical conduct of research satisfy a scientific moral code & it leads to better scientific results. By adhering to the ethical research practice, details of research are given needed attention & there will be very good collaboration among investigators. Moreover the research made with highest ethical standards will gain more credibility with general public.

It is very important that a researcher must not deviate from accepted ethical research practices & must avoid research misconduct. “**Research misconduct**<sup>[1]</sup> is defined as fabrication, falsification, or plagiarism including misrepresentation of credentials in proposing, performing, or reviewing research or in reporting research results”. Any researcher indulging in this type of misconduct is subjected to impositions of sanctions by the institution, professional associations & even funding agencies.

### 1. Plagiarism

“**Plagiarism** is the "wrongful appropriation" and "stealing and publication" of another author's "language, thoughts, ideas, or expressions" and the representation of them as one's own original work.”<sup>[2]</sup> i.e., “use, without giving reasonable and appropriate credit to or acknowledging the author or source, of another person's original work, whether such work is made up of code, formulas, ideas, language, research, strategies, writing or other form”<sup>[3]</sup>. It should be noted that the scope of plagiarism covers reviews, introductory sections of research papers as well as to original research results or interpretations. Plagiarism in any form is unacceptable and is considered a serious breach of professional conduct, with potentially severe ethical and legal consequences. Levels of plagiarism to be avoided: <sup>[4]</sup>

**Level One** pertains to the uncredited verbatim copying of a full paper, or the verbatim copying of a major portion (> 50%), or verbatim copying within more

than one paper by the same author(s).

**Level Two** pertains to the uncredited verbatim copying of large portion (between 20-50%) or verbatim copying within more than one paper by the same author(s).

**Level Three** pertains to the uncredited verbatim copying of individual elements (paragraph(s), sentence(s), illustration(s), etc.) resulting in a significant portion (up to 20%) within a paper

**Level Four** pertains to uncredited improper paraphrasing of pages or paragraphs

**Level Five** pertains to the credited verbatim copying of a major portion of a paper without clear delineation (e.g., quotes or indents)

With proper citations, due credits, & clear delineation, acceptable percentage of reused contents is **20%**.

Sources should be cited appropriately. Citation is required in several instances. <sup>[5]</sup>

**Direct quotation:** Place verbatim text from another source in quotation marks, or indented text for longer quotes, and include a citation to the original source.

**Paraphrase or summary:** Include a citation when restating or summarizing information from another source, including ideas, processes, arguments, or conclusions

**Data, research results, information, graphics, or tables:** Cite the original source when referring to, adapting, or reusing any information from another source.

Note that the same rules apply to one's own previously published work.

Citing an irrelevant source for the purpose of artificially inflating citation metrics is considered a breach of ethics. Only relevant sources that legitimately contribute to the article according to the criteria outlined above must be cited.

For the citations specific journals guidelines or format should be followed. The same rules apply to grant applications and proposals.

## **2. Authorship and Other Publication Issues**

Publication of research results is as important as doing research. Research works must be made accessible to the scholarly world in a manner consistent with the relevant standards of publication. Publication should be timely but should not be hastened unduly if premature publication involves a risk of not subjecting all results to adequate internal confirmation or of not considering adequately all possible interpretations. It must be taken care even while selecting the journal for publication. Impact factor, SCI index, Scopus Index etc may be used cautiously to judge the quality of the journal.

“Author is one who made a significant intellectual contribution to the theoretical development, system or experimental design, prototype development, and/or the analysis and interpretation of data associated with the work contained in the article; Contributed to drafting the article or reviewing and/or revising it for intellectual content; Approved the final version of the article as accepted for publication, including references.”<sup>[6]</sup>

“Contributors who do not meet all of the above criteria may be included in the Acknowledgment section of the article. Omitting an author who contributed to the article or including a person who did not fulfill all of the above requirements is considered a breach of publishing ethics”<sup>[6]</sup>. Every author must be aware that the paper has been submitted for publication; & they agree to be held accountable for any issues relating to correctness or integrity of the work. Each author or co-author is responsible for the compilation, revision and verification of those parts of the manuscript, publication or presentation representing his/her contribution.

If there are multiple author for a single article, it should be agreed on which author will be designated as the corresponding author. The corresponding author is the single point of contact between the authors and the journal where the article is submitted. The corresponding author is also responsible for: Including as co-authors all persons appropriate and none inappropriate; Clearly describing the contribution of each author for the work reported (will

be specifically requested by some journals); Obtaining from all co-authors their assent to be designated as such, as well as their approval of the final version of the article as accepted for publication; & Keeping all co-authors apprised of the current status of an article submitted for publication, including furnishing all co-authors with copies of the reviewers' comments and a copy of the published version, as appropriate. <sup>[6]</sup>

When submitting the article for publication, it should contain original research that hasn't been published before and is not currently submitted to any other publication. In some cases, technical research is often published first as a conference article with preliminary findings and then as a journal article with fully developed research and conclusions. This evolutionary publishing process is permissible provided that: Both the conference and journal articles undergo standard peer review; The journal article contains substantially more technical information than the conference article; The journal article cites the conference article and clearly indicates how the two articles differ <sup>[7]</sup>.

### 3. Data Use & Misuse

The conclusions drawn in report or article must be based on accurately recorded data or observations. It is also important that all relevant observations are reported. Fabrication, falsification, and image manipulation must be avoided while doing the research, writing & revising the article.

**Fabrication:** inventing data or results

**Falsification:** manipulating research materials, equipment, or processes, or changing or omitting data or results

**Image manipulation:** excessive or inappropriate adjustment of an image that alters the scientific meaning of the image <sup>[8]</sup>

Failing to report the data which contradict or fail to support the reported conclusions is unethical on part of the researcher. In case if data has to be ignored for a stated reason (which should be justifiable), it should be stated in the publication. Negative results must be reported with reasons.

#### **4. Data Access & Ownership**

Research data obtained in studies performed at the Institution using the facilities provided by employees of the Institution are not the property of the researcher who generated or observed them. They belong to the Institution, which can be held accountable for the integrity of the data even if the researchers have left the Institution. But reasonable access to data, must be given to the researcher, particularly to who observed & collected the data. If any product or concept emerged out of research is patentable or eligible for copyright, then there should be a written agreement within the research group specifying the rights to the intellectual property.

Faculty members are expected to provide due credits to the parent Institution in terms of citing the Institute name in all publications (National Journal/International Journal/Conference Proceedings) until they are part of the institute.

A researcher who leaves the Institution is entitled to make a copy of data to take to another institution so as to be able to continue the research. In such cases it should be clearly intimated to the institution regarding which data being copied. Each researcher in a group project should come to an understanding with the research guide preferably in writing, about which parts of the project he or she might continue to explore after leaving the research group. Such an understanding should specify the extent to which a copy of research data may be taken. Since the research is interdisciplinary & interrelated involving many persons, relying on the contributions of one researcher by another is common. Hence every investigator is obliged to share the data. It is generally accepted that the data underlying a research publication should be made available to other responsible investigators upon request after the research results have been published or accepted for publication. But it should not harm the policies of publishers in which articles are published. Researchers must know the rights & duties that they are entitled after their article is published and then abide by it.

## **5. Conflict of Interest**

Faculty members must not allow other professional or external activities to distract their attention from their primary responsibilities towards the Institution. They must be available for the institutional activities when needed & asked for. Participation in any events related to research (conference, research methodology workshop, seminar, viva, colloquium etc) should be brought to the notice of HOD and Principal for approval and documentation of research activities of the Institute. They have to abide by the rules of the institution regarding holidays, leaves. Research work can not be stated for exempting non performance in the academic & other activities of the institution.

Researchers must be open in their approach. They must ensure that their personal interests are not influencing the suggestions & guidance that they give to the students. They should disclose their external activities which may affect the academics so that others may keep themselves ready for the consequences.

Researchers may use with prior permission, the Institution resources, including facilities, staff, equipment, information or confidential information as part of research work without disturbing the activities of the institute. Researchers may not use Institution resources for any purpose other than purposes related to tuition, research or service by the Institution.

Researchers should disclose in all their research findings & publications to the institution. Progress report need to be submitted to the institute once in every six months with relevant documents & also present the progress before the research review committee. The potentially patentable inventions that have been discovered or created in the course and within the ambit of their service must also be disclosed to the Institution. Ownership of such inventions should be dealt with in accordance with the policy of Institution.

Institution researchers should not allow their names to be used as “guest” (No contribution to the work reported), “gift” (weakly related, no significant

contribution), “ghost” (should have been listed as author, but excluded) authors for any articles or manuscripts written or provided by commercial sponsors.

Faculty member may be allowed to engage in outside professional activities such as consulting or service on a scientific advisory board, but approval of each such activity from the academic supervisor/Principal must be obtained in advance. In no case Institution facilities are to be used in the conduct of an outside activity, and the Institution name and logo may be used by outside entities only with permission of designated Institution officers. Research performed for an external entity should be conducted by means of a sponsored research contract and not by way of consulting.

## **6. Responsibilities of a Research Investigator / Supervisor**

An investigator who leads a research group has leadership and supervisory responsibilities with respect to the research performed by members of the group. He/She must not only put together the research group but also arrange for the adequate financial and administrative structure to support the research. In addition to guiding & advising the students for the research, he/she must ensure that high level of integrity is maintained by the research group. He or she should thus take all reasonable steps to check the details of experimental procedures and the validity of the data or observations reported by members of the group, including periodic reviews of the research data including tables, graphs, presentations, images & reports. An investigator must manage the research activities of the group. He/She is also responsible for the intellectual and professional development of the scholars working under his/her guidance & junior faculty members in the department, including awareness and sensitivity to issues in research ethics.

A researcher should be open to collaborative work with investigators having different but complementary skills at the Institution.

Research investigator is responsible for monitoring the experimental procedures, and formulating the policies for data collection and compiling results. He/She ensures that the results are published in the form of reports and publications.

## **7. Implementation of ethics in the Institution**

A Research review Cell is appointed by the Principal with formal approval from the management.

Tasks of the Research review Cell:

1. To Provide guidance & advice to the faculty members & students on all matters pertaining to research activities.
2. To conduct workshops & seminars on Research Methodology, Research Proposal/Article writing, Intellectual property rights, Research ethics
3. To review the progress of research activities of the institute through open seminars & reporting by the research scholars.
4. To Formulate research policies for the institution & ensuring that they are implemented effectively.
5. To update the IQAC on effective implementation of Research Ethics in SMVITM.
6. To act as an investigative/consultative body for any disputed matter concerning research ethics and conduct.

Research review cell will monitor the research activities & keep cognizance of these. Acts of research misconduct like Plagiarism, Piracy, Violation of intellectual property rights, misuse of research resources, Fabrication of qualifications, data, information or citation, Exploitation of persons & data, Misuse of research funds or resources provided by funding agencies or the institute, Discrimination based on gender, race, ethnicity, religion, language or culture are dealt with seriously & stringent actions are taken against the people associated with such acts based on the recommendation of research review cell.

Anyone can report an alleged research misconduct to the research review cell when he or she becomes aware of it. The review cell should conduct an investigation about the complaint and recommend whether disciplinary actions to be taken (with description of the action to be taken) or not.

Actions to be taken:




- In a case of minor misconduct, the research review cell is authorized to issue a Memo of Warning with demand for a Letter of Apology from the individual who is responsible for the misconduct.
- In a case of serious misconduct, the research review cell should decide whether or not to recommend sanctions. The sanctions may include, but are not limited to:
  - a. Resubmission of the report;
  - b. Retraction of the article;
  - c. A letter of reprimand issued by the Principal which may be recorded in the personal file of the individual;
  - d. Suspension or withdrawal research grant;
  - e. Deduction from salary or penalty;

**Prepared in accordance with publishing & research ethics stipulated by IEEE, ACM, Springer, Elsevier etc.**

## References

- [1] <https://www.aps.org/policy/statements/upload/federalpolicy.pdf>
- [2] <https://en.wikipedia.org/wiki/Plagiarism>
- [3] <http://studentaffairs.stanford.edu/judicialaffairs/integrity/plagiarism>
- [4] <https://www.ieee.org/publications/rights/plagiarism/plagiarism-faq.html>
- [5] <https://ieeauthorcenter.ieee.org/publish-with-ieee/publishing-ethics/cite-sources-appropriately/>
- [6] <https://ieeauthorcenter.ieee.org/publish-with-ieee/publishing-ethics/definition-of-authorship/>
- [7] <https://ieeauthorcenter.ieee.org/publish-with-ieee/publishing-ethics/publish-original-research/>
- [8] <https://ieeauthorcenter.ieee.org/publish-with-ieee/publishing-ethics/report-your-data-accurately/>

  
Head  
Dept of Chem, Science & Engg.  
SMVITM, BANTAKAL-574115