

Guidelines for Preventing Illegitimate Authorship

< NRF & KUCRI, 2019.10.01. (enactment) >

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An academic paper is an indicator to measure research productivity and a means to communicate with readers. Thus, it is crucial to foster the best practices in research enterprises by ensuring that contributors who have made substantive intellectual contributions to papers receive credit as authors.

Therefore, the National Research Foundation of Korea (hereafter, NRF) and the Korea University Council of Heads of University Research & Industry Cooperation (hereafter, KUCRI) have been providing guidelines on authorship that research institutes, universities and researchers should comply with.

※ These revised guidelines supplement those previously announced by the NRF and KUCRI on Oct. 1st 2019 by adding protocols for dealing with people with personal connections.

I. General Recommendations

1. The Goal of the Guidelines

- The goal of this guide is to direct researchers who publish their works to journals to designate authorship appropriately.
- This guide is intended to prevent ‘illegitimate authorship’ and to confer credit as an author on those who authentically contribute to research results.

2. Who is an author?

- An author refers to an individual who contributes substantive intellectual contributions to a published work.

- It is notable that rigid criteria and practices for the level of the intellectual contributions which qualify an individual to be an author may differ depending on the academic field.

※ See appendix B for the definition of an author in major fields.

3. What is illegitimate authorship?

- Illegitimate authorship means to list someone as an author who does not make any substantive intellectual contributions to a published paper.
- Illegitimate authorship also includes the omission of an individual who has made significant intellectual contributions to a paper.

< **Guidelines for Upholding Research Ethics** (Article 12 Paragraph 1, No, 4)

[Instructions of the Ministry of Education No. 263] >

“Illegitimate Authorship” refers to listing the names of people who did not contribute as an expression of gratitude or privilege and/or to leave out the names of those who took part without justifications as the following items indicate:

- A. List an individual who did not make any contribution or provide assistance.
- B. Omit the name of an individual who made contributions to research results of the research product.
- C. Publish or present contents of students’ dissertations as their advisor’s sole individual work to a journal or conference.

※ See appendix D on the types of illegitimate authorship.

4. Best practices for Research Institutes (universities and so on)

- Research institutes should draft guidelines for appropriate authorship, then encourage and guide their researchers to comply with the agreed upon guidelines.

※ If research institutes would like to make a guideline authorship of academic papers, please refer to Appendix A.

5. Best practices for Researchers

- When researchers publish or present their research, they should distribute authorship fairly by conferring authorship in accordance with the degree of each individual's intellectual contributions.
- The best way to do this is to determine the level of authorship (first author, corresponding author, coauthor, contributors to be acknowledged, etc.) based on the criteria of the fields or disciplines they serve. Through discussion, participants should come to a consensus and then put it on record. All authors and contributors should agree on the final manuscript of the paper. Every step of the writing of the research paper should be documented and recorded.

※ See appendix C for a checklist of the definitions of authors and contributors.

II. Recommendations for Working with People with Personal Connections

1. Introduction

- This document provides guidelines for researchers who wish to involve minors (age under 19) or their family members (spouse, offspring, relatives, and so on) (hereafter, 'people with personal connections') in their research including when they publish or present papers jointly with them.

※ These guidelines define 'people with personal connections' as minors (age under 19) or researchers' family members (spouse, offspring, relatives, and so on), yet universities and research institutes can define people with personal connections as they fit.

2. Best Practice for Researchers

- Researchers should try to prevent any appearance of research misconduct when involving people with personal connections in research or publishing papers with them.
 - Before research starts: Disclose the research activity plan of people with personal connections to their affiliation and their co-investigators.
 - ※ See Appendix E for the disclosure form involving with people with personal connections in research plans.
 - While conducting research: Document and record information, data, and practical knowledge that people with personal connections have produced while doing the research.
 - ※ Laboratory notes should be documented and recorded based on the procedures of researchers' affiliations, yet if their affiliations do not have procedures, researchers should comply with 'Instructions of the Ministry of Science and ICT (MSIT), Number 44/ Oct. 4th 2018 revised'.
 - Before publishing co-authored papers: Notify their affiliations and the journal to which manuscripts will be submitted that people with personal connections participated in the research.
 - ※ See Appendix F for the pre-release form for co-authoring a publication with people with personal connections.
- Researchers should comply with research ethics when planning to conduct research and co-author paper with personal connections.

**< The Responsibilities and Roles of researchers(Guidelines for Upholding Research Ethics, Article 5
[Introductions of the Ministry of Education No.263] >**

Researchers should conduct their research with academic freedom, yet also comply with the following articles.

1. Treat all research subjects with dignity and fairness when doing human subject research
2. Protect human subjects' personal information and privacy
3. Conduct research with honesty and transparency strictly based on the facts and hand
4. Maintain academic integrity as an expert in their field when applying their findings to the society
5. Contribute to shared knowledge by publishing new research results
6. Confer credit and respect the previous work of others by using disbursing grant funds received for research purposes
7. Maintain strict financial ethics when applying for, managing and disbursing grant funds received for research purposes
8. Disclose fully all research results and conclusions regardless of the funding organizations' interests
9. Enhance research integrity by identifying researchers' affiliations, positions, and academic information when publishing research results
10. Participate in research ethics training

3. Best Practices for Research Institutes

- Research institutes should draft guidelines of regulations for involving people with personal connections in research of publishing a paper with them by including the following guidelines and implementing them.
 - Before research starts: Identify whether people with personal connections will be involved in the research.
 - ※ Things to confirm (example): Research plan for people with personal connections, Conflicts for interest, Safety of the laboratory, and so on.
 - While conducting research: Guide researchers to document and record information, data, and practical knowledge that people with personal connections have produced while participating in the research.
 - Management of co-authored papers: Establish a database of bibliographies and database of original texts of co-authored papers and monitor them regularly.

< The Responsibilities and Roles of Universities and Research institutes (Guidelines for Upholding Research Ethics, Article 6 [Instructions from the Ministry of Education No.263] >

1. Universities and research institutes should make every effort to maintain an open, self-governing research environment which fosters a culture conducive to innovative research.
2. Universities and research institutes should establish their own codes of research ethics to improve research integrity.
3. Universities and research institutes can establish and maintain a committee to improve research integrity and to prevent research misconduct by mediating conflicts or disputes.
4. Universities and research institutes should have a committee to investigate instances of possible research misconduct.
5. Universities and research institutes should regularly provide research ethics training to assure researchers comply with best practices while conducting research and avoid any misconduct.
6. Universities and research institutes should cooperate fully when the Minister of Education or the head of a government funding agency requests work related to the improvement of research ethics such as a research ethics survey.
7. Universities and research institutes should confirm the information of the authors in research results when tracking journal publications, conferences, and research achievements, and they should cooperate fully when the Minister of Education or the head of a government funding agency requests information.
8. Universities and research institutes should investigate diligently when they become aware of possible instances of research misconduct, and they should investigate fully when the Minister of Education, the head of the government funding agencies or other universities request they investigate a researcher for prospective research misconduct.

Website Address	Main features
http://www.icmje.org/icmje-recommendations.pdf	Guidelines of the ICMJE (International Committee of Medical Journal Editors)
http://publicationethics.org/authorship	Guidelines from Cope's website that explain authorship, contributorship, and disputes of authorship
http://ease.org.uk/publications/author-guidelines-authors-and-translators/	Guidelines of the EASE (The European Association of Science Editors) on authorship
https://ori.hhs.gov/publicationsauthorship	The U.S' ORI on authorship and Publications
https://oir.nih.gov/sites/default/files/uploads/sourcebook/documents/ethical_conduct/guidelines-authorship_contributions.pdf	Guidelines of the NIH on authorship in accordance with contributions
https://www.councilscienceeditors.org/wp-content/uploads/CSE-White-Paper_2018-update-050618.pdf	Guidelines of CSE (Council of Science Editors)
https://www.britisoc.co.uk/publications/guidelines-reports/authorship-guidelines/	Guidelines of the BSA (The British Sociological Association) on authorship
https://www.pnas.org/content/115/11/2557	PNAS's website on authors' contributions and responsibility to foster research integrity
https://www.springer.com/gp/authors-editors/editors/authorship-issues/4228	Requirement of authorship suggested by Springer
< Precautions >	
<p>○ The Criteria of authorship seem to be easy in theory, but there are many factors to consider in practice. Authorship plays a role in information who is an author to readers and in taking responsibility for what is published by being credited as an author. There is no definitive consensus on the criteria that determine authorship; however, the recommendations of the ICMJE (International Committee of Medical Journal Editors) are among the most acceptable guidelines for journal editors.</p> <p>※ Source: The COPE Report 2003, How to handle authorship disputes: a guide for new researchers.</p> <p>○ Although the recommendations of ICMJE on authorship are widely accepted and utilized, the criteria and practices of authorship can be varied. For instance, ICMJE defines authors as those who meet all four of their criteria for authorship. In some research fields that require complicated research work and generate large volumes of data, no one qualifies as an author according to the ICMJE criteria. This simply means that documentation of authors' contributions which may be considered abusive in some fields may be considered acceptable practice in others.</p> <p>※ Source: NASEM (National Academies of Sciences, Engineering, and Medicine), 「Fostering Integrity in Research Washington, DC: The National Academt Press, 2017」</p>	

The definitions of Authorship in Major fields

Fields	The definitions of Authorship
International Committee of Medical Journal Editors (ICMJE)	<p>All those designated as authors should meet all four criteria for authorship</p> <ol style="list-style-type: none"> ① Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work ② Drafting the work or revising it critically for important intellectual content ③ Final approval of the version to be published ④ Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
Council of Science Editors (CSE)	<p>Authors are individuals identified by the research group to have made substantial contributions to the reported work and agree to be accountable for these contributions. In addition to being accountable for the parts of the work he or she has done, an author should be able to identify which of their co-authors are responsible for specific other parts of the work. In addition, an author should have confidence in the integrity of the contributions of their co-authors. All authors should review and approve the final manuscript.</p>
American Physical Society	<p>Authorship should be limited to those who have made a significant contribution to the concept, design, execution or interpretation of the research study. All those who have made significant contributions should be offered the opportunity to be listed as authors. Other individuals who have contributed to the study should be acknowledged, but not identified as authors.</p>
American Sociological Association	<p>The American Sociological Association includes the following in its Code of Ethics</p> <ol style="list-style-type: none"> ① Sociologists take responsibility and credit, including authorship credit, only for work they have actually performed or to which they have contributed ② Sociologists ensure that principal authorship and other publication credits are based on the relative scientific or professional contributions of the individuals involved, regardless of their status. In claiming or determining the ordering of authorship, sociologists seek to reflect accurately the contributions of main participants in the research and writing process ③ A student is usually listed as principal author on any multiple-authored publication that substantially derives from the student's dissertation or thesis
Humanities and Other disciplines	<p>Authorship within the humanities, law, and theology is still very much a product of the writing process and usually by a single individual. Any other form of contribution such as generation of ideas, commenting on a draft, or technical assistance is listed in the Acknowledgments. Traditions in the humanities also differ from some disciplines in the social and natural sciences in terms of the relationship between supervisors and students in authorship with respect to graduate work. Frequently, students are sole authors of graduate-related research and supervisors and committee members are acknowledged for the supervision and mentorship that they have provided to the student authors.</p>

※ Source: COPE Council (9 June 2014), What constitutes authorship? COPE Discussion Document

[Jung, Junho · Okju Kim, International guidelines for research publication ethics, Korea Research Foundation(2019), recitation].

General Guidelines for Authorship Contributions (Example)

1. NIH Check list

Contributions		Authorship?
Design & interpretation of results	Original idea, planning & input	Yes, recognized as an author (but an unoriginal or unremarkable idea does not warrant authorship)
	Other intellectual contribution	Yes, if assuming active involvement
Supervisory role	Supervision of the project	Yes, if assuming active involvement
	Training, education	No, cannot be an author
	Mentioning of the first author	No, as long as active involvement as an author
administrative & technical support	Solicit research funds	No, authorship, but yes acknowledgement
	Provide research resources (animals or reagents)	Yes, if novel; No if already published
	Provide patients	Depending on circumstances
Data acquisition	Acquires data through original experimental work	Yes, recognized as an author
	Acquire data through technical experimental work	No, if routine; yes if novel methods added or a specific role, e.g. statistic, imaging, etc.
	Analyze data through assays	Yes, authorship; No if it is only very basic
	Analyze data through statistics	Yes, authorship; No if it is only very basic such as T-test
Writing & other	Draft manuscript	Warrants first authorship
	Read and comment on manuscript	No, cannot be an author (substantial feedback can be acknowledged)
	Others (Lab Chief, etc)	No, cannot be an author

※ Source: http://oir.nih.gov/sites/default/files/uploads/sourcebook/documents/ethical_conduct/guide_lines-authorship_contributions.pdf

2. ICMJE Guideline

Criteria to be an author

- All those designated as authors should meet the following four criteria for authorship:
 - ① Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work
 - ② Drafting the work or revising it critically for important intellectual content
 - ③ Final approval of the version to be published
 - ④ Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
- Authors should not only be accountable for the parts of the work they have done, but also be able to identify which co-authors are responsible for specific other parts of the work.
 - Authors should have confidence in the integrity of the contributions of their co-authors.
- Conversely, all who meet the four criteria should be identified as authors.
 - These authorship criteria are intended to reserve the status of authorship for those who deserve credit and can take responsibility for the work. The criteria are not intended for use as a means to disqualify colleagues from authorship who otherwise meet authorship criteria by denying them the opportunity to meet criterion numbers ② or ③.
 - Therefore, all individuals who meet the first criterion should have the

opportunity to participate in the review, drafting, and final approval of the manuscript.

- Researchers who conduct the work are responsible for identifying who meet these criteria.

- Ideally, they should identify who meet these criteria when planning the work, making modifications as appropriate as the work progresses.

- It is the collective responsibility of all contributors to determine the sequence of the authors.

The Criteria of the Corresponding Author

- The corresponding author is the one individual who takes primary responsibility for communication with the journal during the manuscript submission, peer review, and publication process.

- They typically ensure that all the journal's administrative requirements are met (*).

- * Examples: providing details of authorship, ethics committee approval, clinical trial registration documentation, and gathering conflict of interest forms and statements, etc.

- The corresponding author should be available throughout the submission and peer-review process to respond to editorial queries in a timely way.

- They should respond to critiques of the work and cooperate with any requests from the journal for the data or additional information after publication.

□ **Non-author Contributors**

- Contributors who meet fewer than all four of the above criteria for authorship should not be listed as authors, but they should be acknowledged.
 - ※ Examples of non-author contributors' activities: acquisition of funding, general supervision of a research group, general administrative support, writing assistance, technical editing, language editing, proofreading, etc.
- Those whose contributions do not justify authorship may be acknowledged under a single heading such as clinical investigators, or participating investigators.
 - ※ Contributors's contributions should be specified such as “served as scientific advisors,” “critically reviewed the study proposal,” “collected data,” “provided and cared for study patients
- Since, acknowledgement may imply endorsement by acknowledged individuals of a study's data and conclusions, editors are advised to require that the corresponding author obtain written permission to be acknowledged from all acknowledged individuals.

※ Source: ICMJE (International Committee of Medical Journal Editors), Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals, *Updated December 2018*.

1. List as an author without any substantive intellectual contributions**⇒ Broadly designated as Honorary authorship** **Coercive Authorship**

- Coercive authorship is a form of honorary authorship where the impetus to include inappropriate authors is external.
- A senior member of a lab or department may use his or her position to pressure researchers to add his or her name to a paper.
- Besides that, subtle environmental pressures may also encourage adding undeserving authors.

 Honorary Authorship

- It can also be called Guest authorship or Gift authorship. It refers to listing as an author someone who has not contributed to the research.
 - The reason Honorary authorship problems arise is that higher status individuals may expect to have their names listed on a subordinate's paper as a reward.
 - An Honorary author is usually a main author's superior or supervisor. Sometimes the legitimate authors of a paper voluntarily list an Honorary author. In some cases, Honorary authors may not even realize that their names are listed on a paper.
- This case is an example of increasing research's legitimacy of a paper by using a famous scholar's name.

Mutual Support Authorship

- Two or more researchers agree to list each other's names on their own papers to give the appearance of higher productivity (to gain an unfair advantage).

Duplication Authorship

- Duplication authorship is the publication of the same work in multiple journals for the appearance of higher productivity.

2. The omission of an individual as an author

⇒ **Broadly designated as Ghost authorship**

Ghost authorship

- Ghost authorship means the omission of an individual as an author who has made substantial contributions to a paper.

The Denial of Authorship

- A particularly serious form of ghost authorship is termed "denial of authorship."
- The most common example of this involves individuals who participate in generating data for what they presume is a legitimate scientific collaboration. However, the other collaborators publish a paper using these data without giving the researchers coauthorship or accurately acknowledging their contribution.
- It should be stressed that denial of authorship can be considered a form of plagiarism and, therefore, scientific misconduct.

※ Reference: Strange, Kevin. "Authorship: why not just toss a coin?." American Journal of Physiology-Cell Physiology 295.3 (2008): C567-C575.

Disclosure Form for Involving People with Personal Connections (Example)

This is an example of the disclosure form researchers can use when they wish to involve people with personal connections in their research.

Summary of Research Project (Based on Research Plan)

Title of Research	
Research Period	
Principal Investigator	(Name) (Affiliation) (Position)
Grant support	(Funding agency) (Amount of grants) won ※If the research program does not receive any funding, do not fill out this section
Participating Investigators	- Investigator A (Name/Affiliation/Position) - Investigator B (Name/Affiliation/Position) - People with personal connections (Name/Affiliation/Position)

Type of Relationship (Check the box)

Kinship (family and relatives)			Minor		
Spouse	Offspring	Other	Acquaintance's children	R&E Program Investigator	Other

Reason for People with Personal Connections to Participate in the Research Project (Check and describe)

1. Observe and learn (Not involved in writing the paper) < >	2. Participate actively in research and implement their own ideas (Involved in writing the paper) < >
(Describe)	

People w/ Personal Connections' Roles and Research Plan for the Research Project

※ Attach a more detailed research plan if necessary

Pre-release Form for Co-authoring a Publication with People with Personal Connections (example)

This is an example disclosure form researchers can use when they wish to co-author a paper with someone with which they have personal connections.

Summary of Research Project (Based on Research Plan)

Title of Research	
Research Period	
Principal Investigator	(Name) (Affiliation) (Position)
Grant support	(Funding agency) (Amount of grants) won ※If the research program does not receive any funding, do not fill out this section
Participating Investigators	- Investigator A (Name/Affiliation/Position) - Investigator B (Name/Affiliation/Position) - People with personal connections (Name/Affiliation/Position)

Type of Relationship (Check the box)

Kinship (family and relatives)			Minor		
Spouse	Offspring	Other	Acquaintance's children	R&E Program Investigator	Other

Plan to co-author with someone with a personal connection (Check)

Conference		Journal	
Domestic	International	Domestic	International
<Summary of Conference to present> - Name of Conference: - Title of Paper: - Location and Period: - Participating Authors:		<Summary of Journal to present> - Name of Journal: - Title of Paper: - Location and Submission: - Participating Authors:	

Justification to list someone with personal connections as an author

※ Specify ways that someone with a personal connection contributed to the research

Specify the contributions by research stage (summarize)

Type	Planning Research (Research Design, Conceptualization)	Conducting Research (Data collection/ Analysis/ Interpretation/ Writing Manuscripts)	Writing Manuscripts (Writing a significant part of the paper/ Making critical revisions)	Confirming the Final Manuscript
Author A				
Author B				
People w/ Personal connections				

※ Caution : List only individuals who qualify as legitimate authors. Specifically, not all participating investigators involved in research will necessarily meet the criteria for authorship.

Contribution rate and confirmation by authors <agreed among authors>

Type	Planning Research	Conducting Research	Writing Manuscripts	Confirming the Final Manuscripts	Total contribution Rate	Signature for Confirmation
Author A	()%	()%	()%	()%	()%	
Author B	()%	()%	()%	()%	()%	
People w/ Personal connections	()%	()%	()%	()%	()%	
Total	30% (*)	40% (*)	20% (*)	10% (*)	100% (*)	

* The relative contribution weights for the different stages may be adjusted according to the characteristics of the research project

Research Ethics Confirmation (examples)

Items	Examples
Prevention of change and addition of authors	All of the authors jointly confirm the level of authorship: agree that author A is the lead author and authors B and C (someone with personal connections) are co-authors according to the authors' contribution rates
Prevention of plagiarism and redundant publication	Table and figures are written by author B. Author C confirms the novelty of the research by submitting the paper to an online plagiarism check. No plagiarism of any sentences or paragraphs is detected. (Any previous research used is properly credited.)
Prevention of plagiarism by using translations	The title of the paper, keywords, independent variables, hypotheses, and originality of the research model are confirmed. The Korean and English abstracts are written based on research results. No plagiarism found after the original Korean version is submitted to an online plagiarism test.
Prevention of research misconducts	The original data used for empirical analysis are well recorded. The sources of tables and figures are indicated.
Prevention of plagiarism by using salami/ segmented publication	The most similar previous research is (). The presentation of the idea is by author A and author C supplemented the findings.

() Month () Day () Year

I confirm that all of the above is true.

Name of author	Author A	Author B	People with Personal Connections
Confirmation signature			

Standards for Determining Substantial Contributions as a Co-author (example)

The following questions may be used when universities and research institutes wish to have their own regulations to check whether it is reasonable for someone with personal connections to be involved in research.

1. Did they present the original ideas in the research?
2. Did they design the research?
3. Did they understand the research plan and gather the data, interpret and analyze the data, and contribute to the research as an author?
4. Did they record data that they produced or write a manuscript by analyzing and interpreting data? Also, were their contributions included in the final version?
5. Did they make significant intellectual contributions (comments, revisions or supplements) to the draft?