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Research Integrity and Ethics Common to the Graduate Schools of Kyoto University

Subcommittee for Research Integrity Education

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Topics to be Discussed

1. The concept of research integrity at Kyoto University
2. What are misconduct issues in research?
    1) The protection of research participants (the vulnerable)
    2) Scientific misconduct
    3) Publication ethics
    4) Conflict of Interest: COI
    5) Review questions: What is the problem?
3. "What should I do?": Learning from case studies
4. Initiatives of Kyoto University

The concept of research integrity at Kyoto University

Creation of a mechanism for research with "high aspirations"

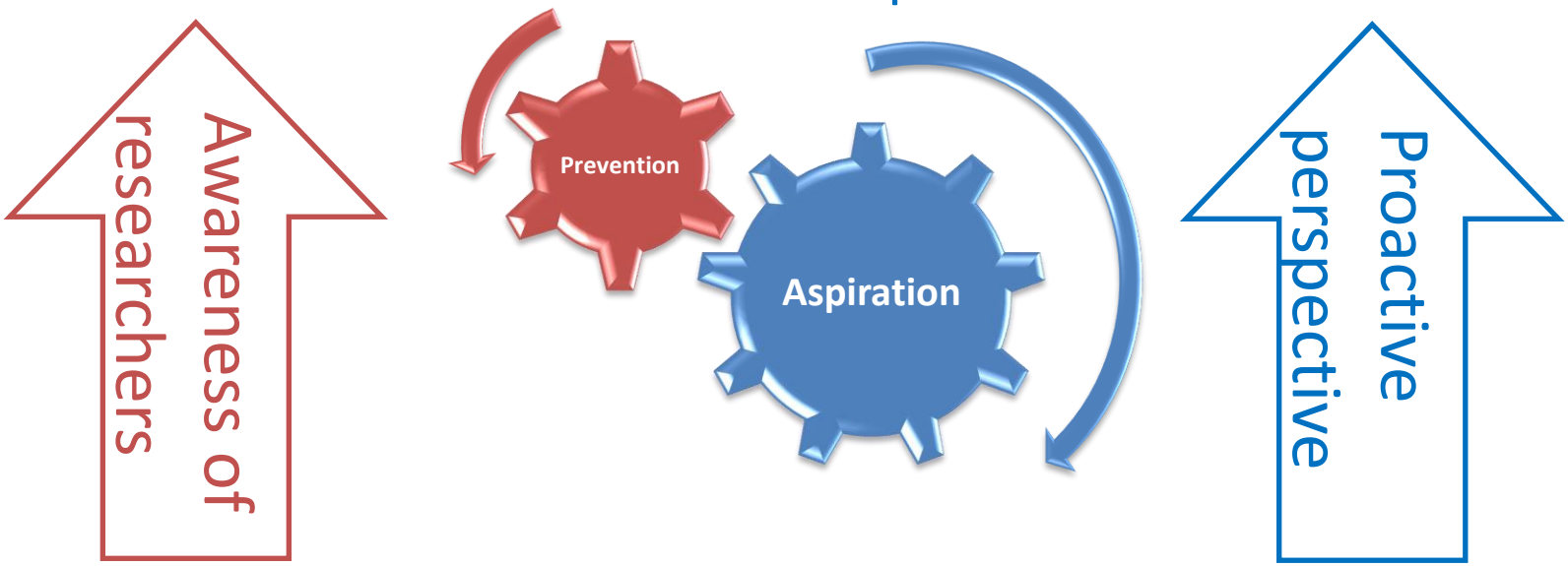
Prevention of research misconduct

(http://www.kyoto-u.ac.jp/ja/research/events_news/office/kenkyukokusai/events/2014/140714_1.html)

The concept of research integrity at Kyoto University

Prevention of research misconduct

Creation of a mechanism for research with "high aspirations"



(http://www.kyoto-u.ac.jp/ja/research/events_news/office/kenkyukokusai/events/2014/140714_1.html)

The concept of research integrity at Kyoto University

Beyond the prevention of research misconduct
- Considering the creation of a mechanism for research with "high aspirations" -

The awareness of individual researchers is required to help prevent so-called "research misconduct" which includes the fabrication, falsification and plagiarism of research papers by researchers.

It is necessary to "create a mechanism" so that research misconduct does not occur. To make this mechanism meaningful, it is necessary to go beyond the passive perspective of simply preventing misconduct; a proactive perspective of aiming for research with "high aspirations" is essential.

(http://www.kyoto-u.ac.jp/ja/research/events_news/office/kenkyukokusai/events/2014/140714_1.html)

The concept of research integrity at Kyoto University

Prevention of research misconduct

What's the problem?
What should I be aware of?

You may encounter some unfamiliar words; please remember them.

These words are issues as research misconduct.

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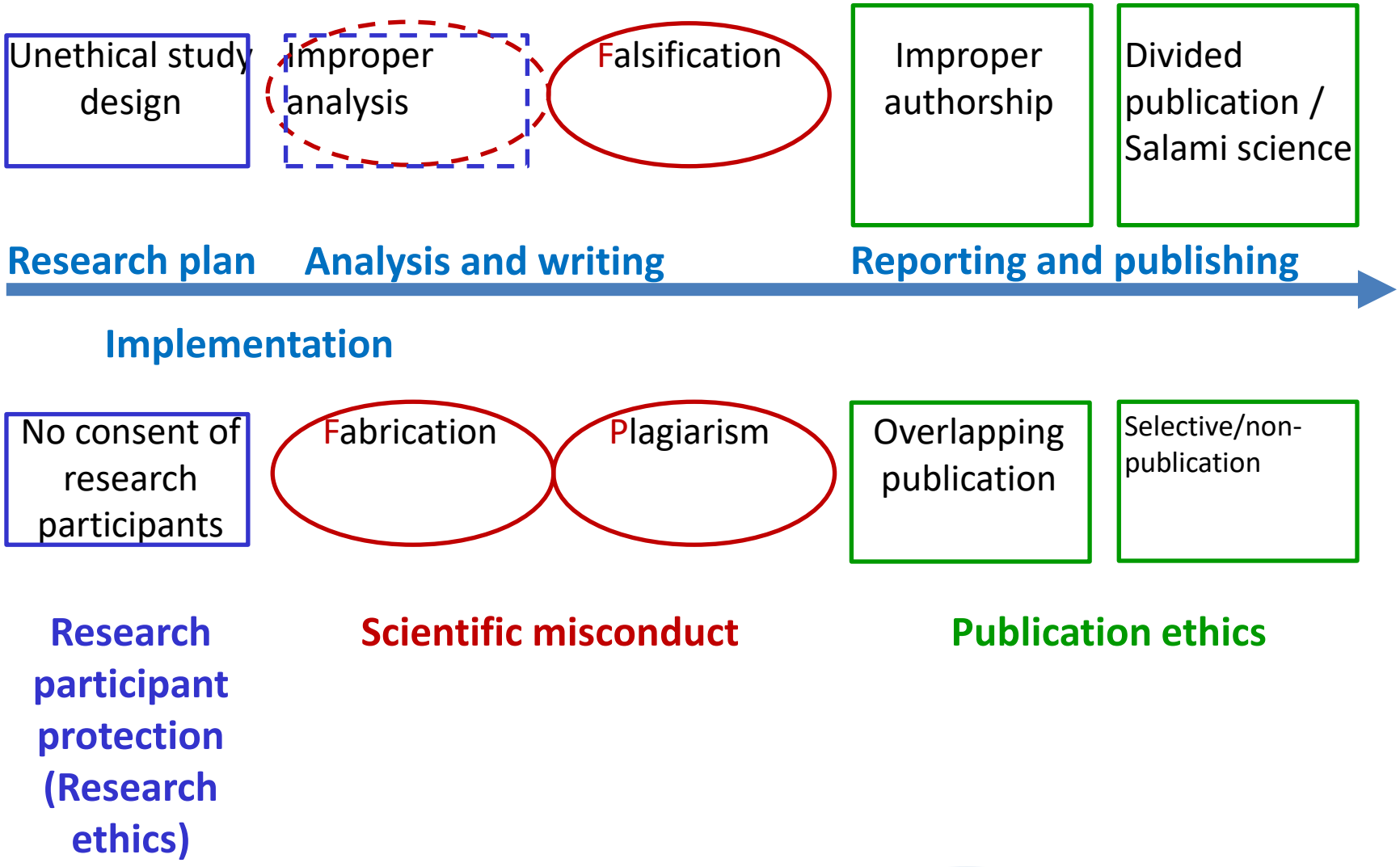
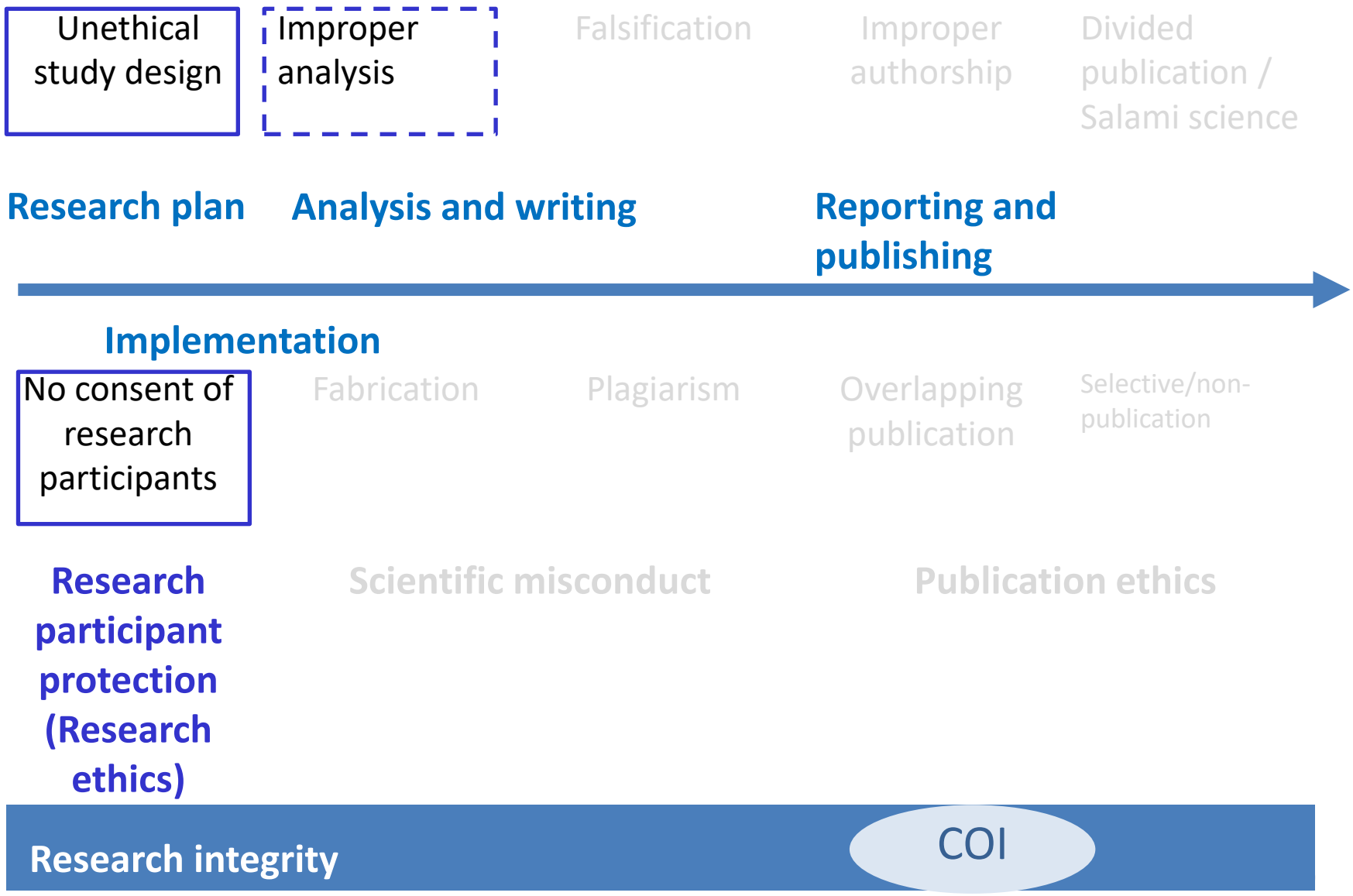
What are misconduct issues in research?



What are misconduct issues in research?



Research participant protection (Research ethics)

Obtaining consent

OECD (Organisation for Economic Co-operation and Development: 8 principles (1980)

⇒ Act on the Protection of Personal Information (2005)

Research participant protection

Science Council of Japan (2013)

Scientists shall respect the dignity and rights of individuals who cooperate in their research, and shall safeguard and give proper consideration to their welfare. They shall also treat animals and other research subjects with all due care and respect.

Declaration of Helsinki (1964 World Medical Association, revised by the 64th WMA General Assembly in Fortaleza, Brazil) : Ethical principles for medical research involving human subjects

The Ministry of Education, Culture, Sports, Science and Technology / Ministry of Health, Labour and Welfare: Ethical guidelines on medical research involving human subjects (2015)

(http://www.scj.go.jp/ja/scj/kihan/index.html)
(http://www.lifescience.mext.go.jp/files/pdf/n1443_01.pdf)

Research participant protection (Research ethics)

<Measures>

Research participant protection

Submit the research plan to the ethics committee and obtain its approval

←Have a third party read over the research plan

Analysis method

Clarify the analysis plan in the research plan

Create a written analysis plan before embarking on analysis following data collection in accordance with the study design (observational study, etc.)

Describe the analytical procedure in the study notes

What are misconduct issues in research?

Scientific Misconduct

F F P

Fabrication

Creating data and research results that do not exist

Falsification

Altering or forging data, images or research results

Plagiarism

Using the ideas, data and research results of others without the appropriate citation

In order not to be considered as falsification

Trimming of image data

Editing of digital images

<Measures>

Submit the original image

Data dredging

Findings from secondary analysis

<Measures>

Clarify the findings as exploratory results from secondary analysis.

In order not to be considered as plagiarism

Patch writing

The use of good English expressions by non-native English authors to make their sentences look better.

⇒This is considered plagiarism in the West (detected by text checking software)

<Measures>

1. Put quotation marks if using a word for word quote
2. Cite the reference if rewriting in your own words

In order not to be considered as plagiarism

Self-plagiarism

Re-submitting a work of yours that has been published previously without disclosing this fact to the new editors and readers is considered potential duplicate publication and potential copyright infringement

⇒Experts repeat their writings

<Measures>

Inform the new editor of the original publication just in case, and cite it as a reference

Determination of FFP is difficult

Did the author inadvertently forget to make a citation (honest error)? Was it deliberate? Cases are often not spelled out in black and white.

Fraud is nothing for you to be concerned with?

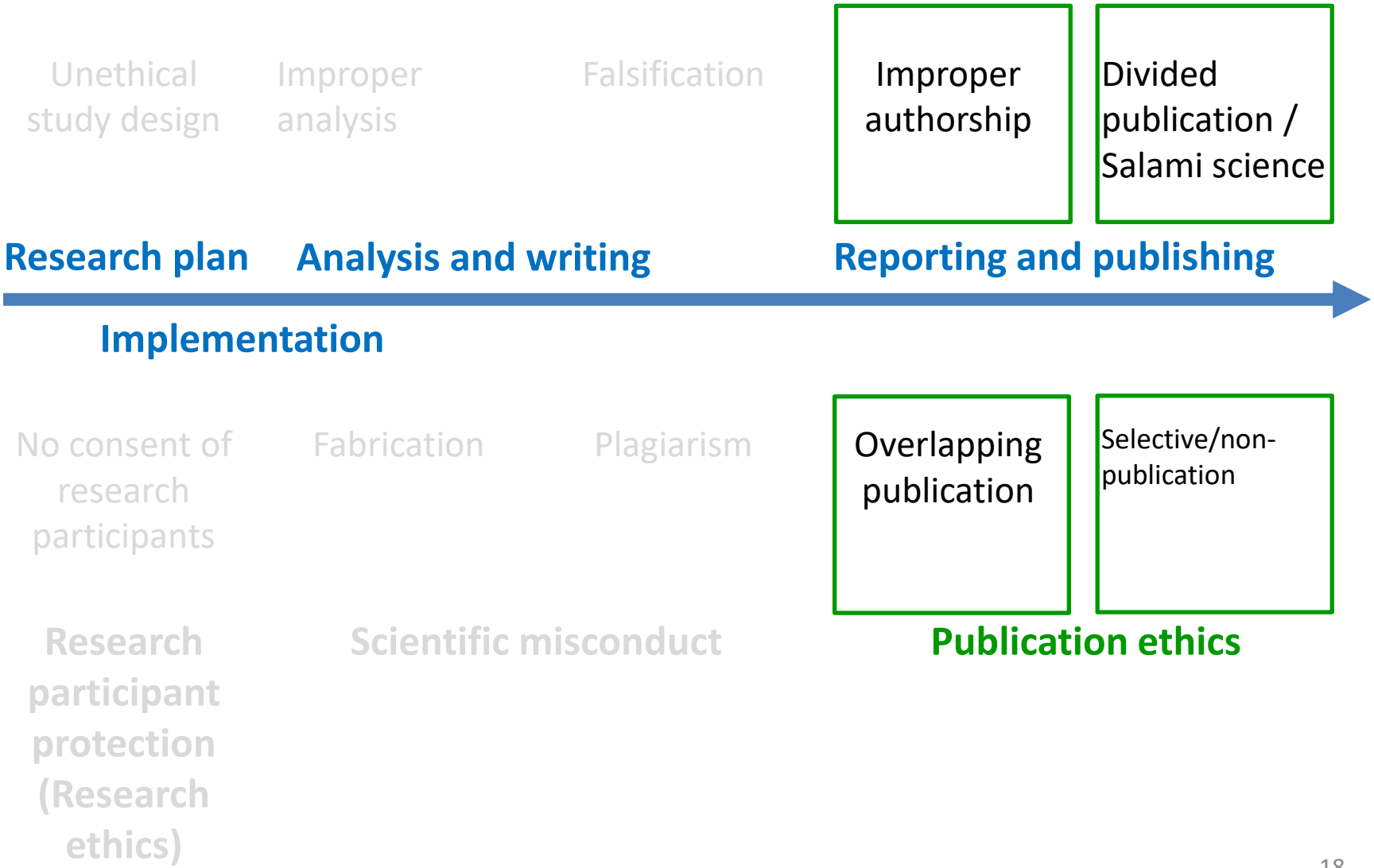
You can't assume that you won't be suddenly suspected of fraud one day.

<Measures>

1. First, consult with a trusted faculty member or friend
2. Create research notes to detail the research process

Research notes prove that the data is yours, and also serve as a means of defense should you be suspected of fraud

What are misconduct issues in research?



Publication ethics

International Committee of Medical Journal Editors (ICMJE) recommendations (2014)

The ICMJE recommends that authorship be based on the following 4 criteria

1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND

2. Drafting the work or revising it critically for important intellectual content; AND

3. Final approval of the version to be published; AND

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.

Publication ethics

Overlapping publication

1. Duplicate submission

The same paper must not be submitted to multiple journals at the same time.

2. Duplicate publication

Papers that largely overlap with published papers (but perhaps have some added unpublished data, for example) must not be published without a clear reference to previously published papers.

Publication ethics

The six conditions under which secondary publication (translations, etc.) is permitted

1. The understanding of the editors of both journals has been obtained
2. The priority of first edition is respected, and arrangements are made for the publication time with both editors
3. The publications have a different readership and language
4. The data and interpretation of the first edition is faithfully reflected
5. A footnote on the title page of the secondary publication indicates that it is a parallel publication, and its bibliographic information as a temporary publication is clarified
6. If published in the MEDLINE journal listing, it is not cited or registered as a translated edition (secondary publication)

Publication ethics

Divided publication / Salami science

Dividing the findings that belong to the same database into as many publishable papers as possible without indicating the findings are from the same project

<Measures>

For subgroup analysis of large-scale projects, clarify the project name and the clinical trial registration number

Selective/non-publication (cherry picking)

Only focusing on results with statistical significance for the main analysis

<Measures>

Publish the research plan (protocol), clinical trial registration

What are misconduct issues in research?

Unethical study design

Improper analysis

Falsification Falsification

Improper authorship

Divided publication / Salami science

Research plan **Analysis and writing** **Reporting and publishing**

Implementation

No consent of research participants

Fabrication

Plagiarism

Overlapping publication

Selective/non-publication

Research participant protection (Research ethics)

Scientific misconduct

Publication ethics

Research integrity

COI

Conflict of Interest

(Conflict of interest : COI)

In their research, reviews, evaluations, judgments and other scientific activities, scientists shall pay sufficient heed to the presence of conflicts of interest between individuals and organizations, or between different organizations, and shall properly address problems paying all due attention to the public interest.

(Science Council of Japan - Code of Conduct for Scientists, revised 2013)

A conflict of interest exists when professional judgment concerning a primary interest (such as the validity of research) may be influenced by a secondary interest (such as financial gain)

(ICMJE, recommendations, 2014)
(http://www.icmje.org/icmje-recommendations.pdf)

Conflict of Interest (COI)

COI does not only include financial interests

→ Reviewers must not use knowledge obtained from reviewed papers prior to their publication for their own benefit

COI does not amount to misconduct on its own
⇒Proper disclosure

COI reporting and ensuring transparency → ensuring the reliability of the study

Kyoto University Conflict of Interest Management Regulations

Instruction No. 79 issued on January 21, 2014

A “Conflict of Interest” is described as follows:

a) The inhibition of the university's social responsibility due to prioritizing the benefit obtained from companies, etc. along with the university's involvement in joint ventures with these companies, etc. (hereinafter, "Industry, government and academia collaborative activities")

b) The inhibition of a faculty member's performance of his/her proper duties in the university due to prioritizing the benefit obtained by him/herself or by companies, etc. as a result of receiving benefits from companies, etc. such as implementation fees, part-time remuneration and unlisted stocks along with his/her involvement in industry, government and academia collaborative activities.

c) The inhibition of a faculty member's performance of his/her proper duties in the university due to prioritizing the work performance responsibilities owed to the companies, etc. for which he/she performs part-time work.

(http://www.kyoto-u.ac.jp/uni_int/kitei/reiki_honbun/w002RG00001171.html)

Code of Conduct for Scientists

Science Council of Japan, revised 2013

(Research Activities)

Scientists shall act with integrity according to the spirit of this Code of Conduct in drafting, planning, applying for, implementing, and reporting their own research. By reporting their research results through such means as papers, scientists shall take responsibility as well as obtaining recognition for their achievements in accordance with the role that they played. Scientists shall ensure that research and survey data are recorded, stored and rigorously handled, and not only refrain themselves from any misconduct such as fabrication, falsification or plagiarism, but also refrain from aiding or abetting such misconduct.

Review questions: What is the problem?

Summerlin case (1974)

In 1974, William Summerlin, working in the immunology department of the Sloan-Kettering Institute for Cancer Research, reported that he could transplant tissue from genetically unrelated animals without rejection.

Summerlin demonstrated his claims by showing white mice that had black patches of "transplanted skin" on their backs. However, it was revealed that these "transplanted patches" were actually drawn on the skin of the mice with a felt-tipped marker.

(Lang, Synergy, 2012)

Fabrication 

Alsabti case (1977)

Elias Alsabti worked in various U.S. research institutions, and reworked articles from lesser known scientific journals into entries that he submitted for publication elsewhere.

His aim was to get ahead by accumulating a long list of publications in order to have a decorated scientific career similarly to many other scientists.

His plagiarism continued for three years.

However, his hasty approach of carelessly stealing papers word for word finally led to his downfall. Perhaps if he had been more careful, his plagiarism would never have been detected.

Plagiarism 

(Broad, Kodansha, 2014)

Synthroid case (1997)

The manufacturer of Synthroid, a thyroid hormone formulation for hypothyroidism patients, supported a study to favorably compare Synthroid with its generic counterparts. However, the results of the study were not as favorable as expected.

To prevent the publication of the results, the manufacturer relied on a clause in its agreement with the researcher requiring the permission of the company to publish the results. The researcher's employer, the University of California, ordered the researcher to withdraw the paper, fearing expensive and protracted litigation.

The manufacturer made $800 million from Synthroid in the next 6 years before the paper was eventually published.

(http://www.nytimes.com/1997/04/16/us/drug-firm-relenting-allows-unflattering-study-to-appear.html?pagewanted=2) (Lang, Synergy, 2012)

Non-publication

The Millikan-Ehrenhaft controversy (1913)

Millikan, a Nobel Prize winning physicist, first measured the elementary electric charge, that of the electron.

Ehrenhaft, on the other hand, pointed out that his statement that an auxiliary electron with minute electrical charge exists has been backed up by these results.

To rebut Ehrenhaft, and prove that single electrical charge is more suitable, Millikan published more accurate results.

Gerald Holton, a Harvard University historian, later discovered discrepancies between the laboratory notebook of Millikan and the published data.

In Millikan's laboratory notes there were measurements for 140 droplets, whereas the published results in 1913 state emphatically that there were measurements for 58 droplets.

(Broad, Kodansha, 2014)

Selective publishing

Gelsinger case (1999)

Jesse Gelsinger, an 18 year-old boy who suffered from ornithine transcarbamylase deficiency, joined a clinical trial on gene therapy run by the University of Pennsylvania.

He died of multiple organ failure resulting from the use of the viral vector used to transport the gene into his cells.

An investigation concluded that the scientists involved in the trial broke several rules of conduct:

- Gelsinger's health condition was not good, and that should have led to his exclusion from the trial;
- There was no mention of serious adverse events in the consent form;
- The research organization failed to perform its obligation to present information such as the risks and rewards from participation in the trial, and induced patients to join the trial inappropriately

The co-investigator Dr. M. Wilson, was a founder and shareholder of the research sponsor, and both he and the university made huge stock profits.

(Iwao Goma, Journal of Kyoto Prefectural University of Medicine, 2011)

(http://www.washingtonpost.com/wp-srv/WPcap/1999-11/21/101r-112199-idx.html)

COI / research participant protection

Schön scandal (Bell Labs) (1998-2002)

Schön, a young researcher at Bell Labs, briefly rose to prominence after a series of apparent breakthroughs, namely, the discovery of superconductivity using organic crystals and the development of electronic elements. Within a short period of time, he published many papers in the journals *Science* and *Nature*, etc.

At times, he was listed as an author on an average of one newly published research paper every two weeks.

It was even rumored he would be awarded a Nobel Prize as a genius physicist.

An anonymous phone call to "compare the graphs in two of Schön's papers" led to the discovery of misconduct from the fact that there were two sets of experimental data which closely resembled one another, down to the curve, and that could not be reproduced with additional tests.

(Broad, Kodansha, 2014)

Fabrication / falsification 

Kornak case (2002)

Paul H. Kornak, a Stratton VA Medical Center (New York) oncology program research officer, posed as a doctor from 1999 to 2002 and falsified patient data to allow patients excluded from the eligibility criteria to be registered in studies.

He falsified the blood biochemical examination of a 78-year old patient to hide his abnormal liver and renal function.

The patient died after the administration of the investigational drug, and Kornak was subjected to criminal penalties for accidental homicide.

(Lang, Synergy, 2012)

Research participant protection / falsification

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Group Work Project

It was arranged that I was going to meet Prof. Yamada (a tentative name) after an extended period of time. He was an associate professor of a medical university in Tokyo.

I make it a practice to read their recent research articles before I meet people like professors, doctors, and so on.

I haven't heard anything about his study for a long time, but what is he working on at present?

Ho-hum, it's a bit surprising he published on subjects outside his field of expertise as well ...

Huh?... What? This figure... totally the same, even three digits after the decimal point. No quotation... Is he a co-researcher?.... No!

That was the very figure I had presented at a poster session of an academic conference held in Taipei.

(I felt as if my hands holding the paper have frozen with the shock)

"If you were in my position, what would you do?

- Discuss what you would specifically do.
- Designate the one who presents the thought of your group.
- Your group presentation should be done within 3 minutes.
- The group discussion can be made until _____.

I recollected myself, and I decided to consult with a clinical medical advisor. He told me off and said,

"It was your mistake to distribute the handouts of

the poster". So I was the one who was wrong…

My supervisor was hospitalized at that time.

So, I talked to the Dean of the graduate school. "... Without doubt, they are your research findings.

But I don't know what to do", he said

with a sad face.

(I felt quite sad and disheartened)

I had something to talk about with Prof. N. in Kyoto. So, I got in touch

with him.

I blurted out such a personal matter in the email, saying, "I am so discouraged

because this and that happened to me".

Immediately after that, I received a reply email from Prof. N, saying, "Prof. M, I am N at the graduate school of medicine at Kyoto University.

Please fax your paper and the handout immediately.

Thank you very much".

And then, I sent the fax.

Prof. N sent the return email, which I received. That was a long mail.

"This figure was indeed taken out of the poster handout," he said.

There were four specific measures that were prioritized.

The appointment to meet Prof. Yamada was canceled.

Not I, but the supervisor sent “an inquiry letter” (In fact, the Dean of the graduate school was the one who wrote the letter because the supervisor was hospitalized at that time) to the chief editor of the journal. It was certainly an inquiry with the fact laid down.

Result: Four months later, a small correction notice was posted in a colophon of the journal, saying that the figure was quoted from the research findings from survey M.

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Initiatives of Kyoto University

Faculty of Medicine, Graduate School of Medicine

Those who do not attend a lecture of the clinical research seminar that is held once a year will not be allowed to submit their research proposal to the medical ethics committee (e-learning is also available). The seminar targets only the teaching staff who are in a position to submit the proposal to the committee.

Rules regarding the promotion of research integrity at Kyoto University(As of March 1,2015)

京都大学における研究活動上の不正行為の防止等に関する規程の全部を改正する規程

京都大学における研究活動上の不正行為の防止等に関する規程（平成１８年達示第６８号）の全部を次のように改正する。

京都大学における公正な研究活動の推進等に関する規程

（目的）

第１条　この規程は、京都大学（以下「本学」という。）における教職員等の公正な研究活動を推進するとともに、研究活動上の不正行為が行われ、又はそのおそれがある場合に厳正かつ適切に対応するために必要な事項を定めるものとする。

（定義）

第２条　この規程において「教職員等」とは、本学の役員、教職員、学生等で、本学において研究活動を行うすべての者をいう。

２　この規程において「教職員」とは、本学が定める就業規則に基づき雇用されている者をいう。

３　この規程において「学生等」とは、学部学生及び大学院学生、外国学生、委託生、科目等履修生、聴講生、特別聴講学生、特別研究学生、特別交流学生等（京都大学通則（昭和２８年達示第３号）第５章に定めるもの）、研究生、研修員等（京都大学研修規程（昭和２４年達示第３号）に定めるもの）その他本学に在学若しくは在籍し、又は受入れて修学又は研究に従事する者をいう。

４　この規程において「研究活動上の不正行為」とは、本学の教職員等が研究活動（修学上行われる論文作成を含む。）を行う場合における次の各号に掲げる行為をいう。ただし、故意又は教職員等としてわきまえるべき基本的な注意義務を著しく怠ったことによるものに限る。

(1) 捏造　データ、研究結果等を偽造して、これを記録し、又は研究の報告若しくは論文等に利用すること。

(2) 改ざん　研究資料・機器・過程を変更する操作を行い、これにより変更・変造したデータ、結果等を用いて研究の報告、論文等を作成し、又は発表すること。

(3) 盗用　他人のアイディア、分析・解析方法、研究結果、論文又は用語を当該他人の了解を得ず、又は適切な表示をせずに使用すること。

５　この規程において「研究公正教育」とは、公正な研究活動を行うために教職員等に求められる倫理規範を修得等させるための教育をいう。

６　この規程において「部局」とは、各研究科等（各研究科、各附置研究所、附属図書館、医学部附属病院及び各センター等（国立大学法人京都大学の組織に関する規程（平成１６

（http://www.kyoto-u.ac.jp/ja/about/organization/other/revision/documents/h26/t59-26-2.pdf）

(Reception Desk)

Article 9　In response to reports or consultations about alleged misconduct in research activities ("consultation" defined here is the one with an uncertainty about the relevant fact of the misconduct. Hereinafter, "report (ing) and the like"), the reception desk shall be set up at Research Promotion Department and each bureau of the International Research Division.

(Methods of Reporting, and the like)

Article 11　The report shall be, in principle, made in writing (including a fax and an email. Hereinafter the same shall apply) and submitted or sent to the reception desk.

The writing referred in the preceding paragraph shall, in principle, indicate the name of the reporter and the matters listed in the following items.

(1) The name (s) of the teaching staff or the group, and the like who allegedly committed misconduct in a research activity.

(2) Detailed content of the misconduct in the research activity

(3) A scientific and rational reason (s) that proves the act in the research activity to be fraudulent

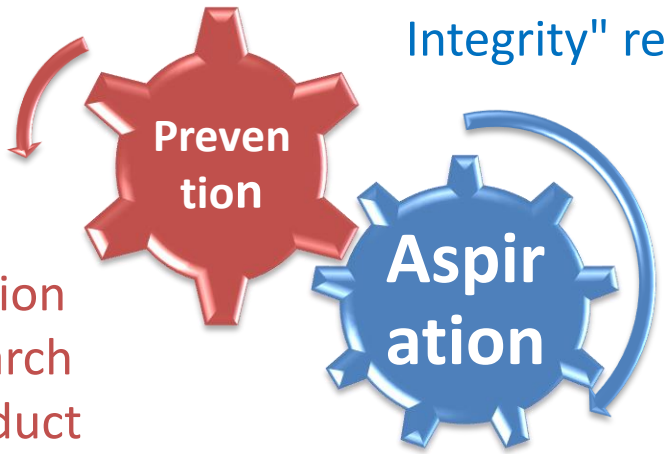
3. In the case of incomplete information stated in each item under the preceding paragraph, the reception desk shall give the reporter instructions to correct the concerned writing.

（http://www.kyoto-u.ac.jp/uni_int/kitei/reiki_honbun/w002RG00001165.html）

Research integrity and ethics affect the whole process of the research, such as design, planning, implementation and publishing.

Keep constant awareness of research integrity/ethics as ″your primary concern″.

As a researcher
of Kyoto University,
conduct research
with ″High Integrity″!



Acknowledgments

In Nagoya in January, 2015, Dr. Elizabeth Wager (Ex-chairperson of the Committee on Publication Ethics, COPE) gave us specific advice from the viewpoint of creating materials for all faculties (across all disciplines).

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