Recent Efforts and Tasks for the Korean Government to Secure Research Integrity

In Jae, Lee
(Prof. Seoul National University of Education, Director of CRE)
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   - Center for Research Ethics (CRE)

3. Future Challenges for Establishing Research Ethics
Recent Issues of Research Ethics and Infrastructure of Research in Korea
Is it right to give an author qualification to a professor’s child who is a high school student?

Blind love for children goes too far

Shame on professors

It is shocking news that professors at 29 universities were found to have named their children as co-authors in dissertations over the past 10 years. The Ministry of Education disclosed the finding last week, implying many professors violated research ethics to help their children, mostly high school juniors and seniors, boost their academic profiles for university admissions.

The ministry should investigate further to confirm if any children of the professors actually received admissions with the undue help of their parents. In all likelihood, professors listed their children as co-authors even though their offspring did not participate in or contribute to research. Thus it can be inferred professors have done so only to get their children admitted to prestigious universities.
Actual Situation Survey by MOE

Result by Review Advisory Committee including 7 research ethics experts

- **Total**: 139
  - Research Misconducts: 12
  - No Research Misconducts: 125
    - Appropriate review (Non research misconduct): 40
    - Inappropriate review (Not yet been confirmed whether it is research misconduct): 85
    - Re-review: 2
Actual Situation Survey of co-Author of Minor

- **Period**: From July 2018 to November 2018
- **Subjects**: Full time professors and non-year track professors
- **Contents**: Among the papers and proceedings published for about 10 years from February 8, 2007 to December 31, 2017, the number of students in middle and high schools registered as co-authors and their relations with authors were surveyed
- **Results**: 255 professors from 56 universities were involved, and the total number of papers and proceedings were 410
Special Measures by MOE

- Improving procedures for minors to participate in academic papers
  - Revision of Government Guideline (July, 2018): When presenting research results, clarify the affiliation and grade of the Minors (author information)
  - When funded by governments, the minors, spouse, or lineal ascendant and descendant of researchers who participate in the research must obtain prior approval from the research grant institution.

- Provision of a hotline on research misconduct including co-author of minor
Issues of questionable (fake, bogus, vanity, misguided) academic activities

Increase in paper contribution to WASET & OMICS after 2014

In the case of OMICS, from 2009 to 2018, 1,812 Korean researchers from 117 institutions have used it.

Utilizing government research fund and university fund itself, 574 faculty members in 90 universities have attended 808 times

<table>
<thead>
<tr>
<th>The Number of Participation</th>
<th>The Number of Faculty members</th>
</tr>
</thead>
<tbody>
<tr>
<td>once</td>
<td>455</td>
</tr>
<tr>
<td>2 to 6 times</td>
<td>112</td>
</tr>
<tr>
<td>over 7 times</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>574</td>
</tr>
</tbody>
</table>

Number of WASET papers submitted by year

* Graphic Image: https://newstapa.org/43815
Why is it a problem to participate in poor conferences or publish articles in vanity journals?

Paper presentations at international conferences organized by WASET and OMECS

- 265 researchers spent $500 millions of R&D fund over recent 3 years
- Provide local tourism after the presentation of a poor paper at an international academic conference held at major tourist destinations around the world
- Conferences with no qualifications for presentation and mixing research field
- Paper presentation without peer-review
Research infrastructure of Korea by 2016

- 5th in the world with a total research fund of 79.4 billion dollars.
Research infrastructure of Korea by 2016

- Total R&D investment to GDP stands at 4.24%, the second highest in the world.
• Of the total R&D investment, 22.68% is government funding (lower than in major industrialized countries)
Research infrastructure of Korea by 2016

- Of the total R&D investment, 9.13% is for university research. This is very low.
Research infrastructure of Korea by 2016

- There are 13.3 researchers per 1,000 economically active population. This is high compared to major countries.
Research infrastructure of Korea by 2016

• The percentage of university researchers is 11.3%, which is the lowest level compared to the percentage of major countries.
Research infrastructure of Korea by 2016

- The SCI papers are ranked at 12th in the world. The top 1% papers published are at the 15th in the world. NSP (Nature, Science, PANAS) is at the 16th in the world.
Research infrastructure of Korea by 2016

- In 2017, the science infrastructure was ranked at the 8th, and the technology infrastructure was at the 17th.
Government R&D budget trend

Expansion of basic research centered on researchers

2018: $1.187 billion
2019: $1.396 billion

17.6% increase

Unit: trillion won

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<thead>
<tr>
<th>Year</th>
<th>Individual Research</th>
<th>Collective Research</th>
<th>Establishment of Academic Foundation for Science and Engineering</th>
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<td>2018</td>
<td>$10,762</td>
<td>$1,988</td>
<td>$1,493</td>
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<td>2019</td>
<td>$12,337</td>
<td>$2,210</td>
<td>$2,207</td>
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Unit: %

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<th>Year</th>
<th>Budget</th>
<th>Year-on-Year increase/decrease rate</th>
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<td>2009</td>
<td>12.3</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>13.7</td>
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</tr>
<tr>
<td>2011</td>
<td>14.9</td>
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<td>2013</td>
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<td>2017</td>
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<td>2018</td>
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<td>2019 (draft)</td>
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### The survey of university's research ethics activity in 2018

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<tr>
<td><strong>Answer University</strong></td>
<td>176 universities</td>
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<td><strong>Survey Period</strong></td>
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<tr>
<td><strong>Research Institute</strong></td>
<td>the National Research Foundation of Korea(NRF)</td>
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</table>

※ There is a difference between the survey response rate and the subject of survey every year, so it is difficult to make a simple comparison by year
Recent Research Ethics Activities of Korea

The number of research misconduct judgment of university in the last 5 years

Total 332

Caution is needed!
Recent Research Ethics Activities of Korea

**Types of Research Misconduct**

- The most common types in recent 5 years are plagiarism (36.7%), improper authorship (25.9%), and data duplicate use (redundant publication) (14.1%).

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<thead>
<tr>
<th>year</th>
<th>fabrication</th>
<th>falsification</th>
<th>plagiarism</th>
<th>improper authorship</th>
<th>data duplicate use (redundant publication)</th>
<th>Interruption of the investigation*</th>
<th>others</th>
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<tbody>
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<td>5</td>
<td>18</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>31</td>
</tr>
<tr>
<td>2015</td>
<td>0</td>
<td>3</td>
<td>23</td>
<td>3</td>
<td>6</td>
<td>0</td>
<td>6</td>
<td>41</td>
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<td>2016</td>
<td>4</td>
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<td>30</td>
<td>30</td>
<td>17</td>
<td>0</td>
<td>10</td>
<td>92</td>
</tr>
<tr>
<td>2017</td>
<td>4</td>
<td>2</td>
<td>18</td>
<td>9</td>
<td>13</td>
<td>0</td>
<td>12</td>
<td>58</td>
</tr>
<tr>
<td>2018</td>
<td>3</td>
<td>6</td>
<td>33</td>
<td>41</td>
<td>10</td>
<td>0</td>
<td>17</td>
<td>110</td>
</tr>
<tr>
<td>Total</td>
<td><strong>12</strong></td>
<td><strong>17</strong></td>
<td><strong>122</strong></td>
<td><strong>86</strong></td>
<td><strong>47</strong></td>
<td>0</td>
<td><strong>48</strong></td>
<td><strong>332</strong></td>
</tr>
</tbody>
</table>

* Interrupting the process of investigation of one’s own research or of other’s on purpose or harming Complaint
Recent Research Ethics Activities of Korea

Types of sanctions by research misconduct in the last five years

- Caution: 11.3%
- Warning: 11.9%
- Reprimand: 4.5%
- Salary reduction: 9.0%
- Suspension: 9.0%
- Demotion: 0.0%
- Dismissal: 2.4%
- Expulsion: 1.2%
- Reflected in evaluation: 4.5%
- Withdrawal research fund: 9.9%
- Reflection into bonus pay: 3.0%
- Retraction: 5.4%
- Cancellation of a degree: 6.9%
- N/A: 21.2%
Recent Research Ethics Activities of Korea

University number and the ratios(%) research ethics education in the last 5 years

Number of universities offering research ethics education

- 2014: 113
- 2015: 133 (56.50%)
- 2016: 132 (72.50%)
- 2017: 114 (63.00%)
- 2018: 135 (76.70%)
Recent Efforts for Securing Research Ethics
- Focused on Government -
Research Ethics Governance of Korea

Establishment of Research Ethics Culture for RCR

- University
- Gov. funded Inst.
- Research Inst.

- NRF
- NRC of Eco. Hum. Soc.
- NRC of Sci. Tech.

- Kor. U. Council of R. E.
- Kor. Council for Univ. Edu
- Kor. Assoc. of Aca. Soc.

- Academic Soc.
- Publisher

- CRE
- KIRD

- Copy killer
- Turnitin

Government

Autonomous Observance

Supporting of Edu. & Info.

Expert Group

Research Org.

Research Funding Agency

Academic Society

Company

Consulting, Resources support

Support & Monitoring

Observance Report
Research Ethics-related Government Organization

<table>
<thead>
<tr>
<th>Human bioethics</th>
<th>Science and Technology</th>
<th>General Studies</th>
<th>Animal Life Ethics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Top Organization</strong></td>
<td>National Bioethics Review Committee (Under the President)</td>
<td>National Science and Technology Council (Under the Prime Minister)</td>
<td>Ministry of Agriculture, Food and Rural Affairs</td>
</tr>
<tr>
<td><strong>Government Departments</strong></td>
<td>Ministry of Health and Welfare</td>
<td>Ministry of Science and ICT</td>
<td>Ministry of Food and Drug Safety</td>
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<tr>
<td><strong>Government Departments Aids</strong></td>
<td>Research Ethics Advisory Committee</td>
<td>Research Ethics (Integrity) Committee</td>
<td>Animal Welfare Committee</td>
</tr>
<tr>
<td><strong>Universities and Research Institutes</strong></td>
<td>Research Ethics (Integrity) Committee</td>
<td>Research Ethics (Integrity) Committee</td>
<td>Animal Experiment Ethics Committee</td>
</tr>
<tr>
<td></td>
<td>Experimental Animal Management Committee</td>
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Characteristics of Research Ethics Governance in Korea

**Hybrid approaches of Top-down and Bottom-up**

### Top-down

- Government-led recommendation & sanction
- Providing basic and general guidelines and supporting of research ethics activities

### Bottom-up

- Autonomous compliance with research ethics
- Prevention rather than punishment by education
- Slow, but continuous well-established research ethics system and culture

Researchers, Universities, Institutions
Measures to establish research ethics to strengthen accountability of universities

**Aim:**
Establishing an honest and responsible research culture

**Main activities by stage**

**Prevention**
- Redetermination of the concept and types of research ethics
- More strengthened education for research ethics and healthier research culture

**Follow-up Actions**
- Strict actions for research misconduct
- Factual survey for research misconduct and revelation

**Foundation Establishment**
- Empowerment of government and universities for the management of research ethics

**Principles of the measures**
Balancing between research autonomy and government watch for government funded research
Redetermination of the concept and types of research ethics

- Reexamination of the range of research misconduct for prompt responses to the event of newly occurred research misconduct
- Integration and the establishment of consistency between different regulations of different government ministries
- Establishment of guidelines that will diminish conflicts of interest between research institutions that are valuable to research misconduct

More strengthened education for research ethics

- Development and support for curriculum tailored to life cycle of researchers
- Expansion of educational chances of research ethics for professors
- Reinforcement of professionalism of members and staff of university research ethics committee
- More training programs for experts of research ethics education and research authenticity verification
Stricter quality examination for achievement evaluations

- Inducement to switch to quality evaluation focused on key papers of researchers
- Expanded portion of quality evaluation for the national R&D industry

Construction of academic information sharing system

- Gathering and providing for information of questionable academies
- Reporting and verification of questionable academies
Follow-up Actions

- **Strict restrictions to research misconducts**
  - Raising the period of participation limit for national R&D business from 5 years to 10 years
  - Achieving disciplinary equity between universities

- **Establishment of human resource system for research ethics experts**
  - When requested from universities, inviting an outside specialist for prompt verification of research misconduct

- **Conducting yearly factual survey for 20 universities occupying 60 percentages of governmental university research fund**
  - Disclose of the result of the survey
  - Find and spread best practices of rigid observance of research ethics

- **Strengthening evaluation criteria for academic journals**
  - Gain fairness and strengthen managing accountability in the process of paper submission and screening
Installing special institutions for directing and supporting research ethics issues in universities

- Designating CRE as a permanent institution in National Research Foundation of Korea
- Strengthened reporting and consulting system, supporting broader chance for research ethics education, etc.

Including research ethics as a criteria for university accreditation standards

The Ministry of Education and the Ministry of Science and ICT drawing more specific plans for establishing research ethics and organizing aligned regulations cooperating with relevant authorities, research institutions and universities
Establishment of specialized division for research ethics

- Comprehensive management of research ethics affairs including research misconduct and illegal use of research fund

Composition of Research Ethics Advisory Committee (Feb. 12, 2019)

- Prompt detection of research misconduct issues and seeking solutions
- Discussions of the direction of dealing with RM cases and various advisory roles for healthy research culture

Division of Research Ethics

Ethics & Legal Affairs Team

- Research misconduct investigation
- Supporting for research ethics activities
- Research ethics education and awareness promotion
- Building of research ethics infrastructure
- Re-investigation on appeal cases

Research Fund Team

- Settlement works of Research expenses
- Uses out of research funds purpose and management of fraudulent execution and rehabilitation measures
- Matters concerning related systems, laws, and regulations
Research Ethics Activity Support Projects

- **Purpose**
  - Creation of a sound academic research atmosphere and promotion of social awareness of research ethics among researchers for the establishment of research ethics

- **Main Contents**
  - **Strengthening of research ethics education**
    Conduct research ethics education on-line and off-line (including visiting-type education) tailored to each subject target such as master's degree, professor, etc.
  - **Diffusion of research ethics culture**
    Providing contents and consultation on research ethics through the operation of the center for research ethics information portal site ([www.cre.or.kr](http://www.cre.or.kr))
  - **Establishment of research ethics foundation**
    - Establishment of research ethics guidelines, actual survey and establishment of case search systems
    - Establishment of regulation and deliberation organization of research ethics
    - Establishment of criteria such as types of research misconduct and sanctions
Recent Research Ethics Activities of NRC
(National Research Council for Economics, Humanities, and Social Sciences)

<table>
<thead>
<tr>
<th>HQ of 23 National Think Tanks</th>
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</thead>
<tbody>
<tr>
<td>Korea Development Institute</td>
</tr>
<tr>
<td>Korea Institute for International Economic Policy</td>
</tr>
<tr>
<td>Korea Institute for Industrial Economics and Trade</td>
</tr>
<tr>
<td>Science and Technology Policy Institute</td>
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<tr>
<td>Korea Institute for National Unification</td>
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<td>Korean Research Institute for Human Settlements</td>
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<td>Korea Educational Development Institute.</td>
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<td>Korea Information Society Development Institute</td>
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<td>Korea Labor Institute</td>
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<td>Korea Rural Economic Institute</td>
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<td>Korea Legislation Research Institute</td>
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<td>Korea Transport Institute</td>
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<td>Korea Institute for Public Finance</td>
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<td>Korea Research Institute for Vocational Education &amp; Training</td>
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<td>National Youth Policy Institute</td>
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<td>Korea Women's Development Institute</td>
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<td>Korea Institute of Public Administration</td>
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<tr>
<td>Korea Institute of Criminology</td>
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<tr>
<td>Korea Environment Institute</td>
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<tr>
<td>Korea Maritime Institute</td>
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Recent Research Ethics Activities of NRC (National Research Council for Economics, Humanities, and Social Sciences)

Number of suspected violations of research ethics in the last 3 years

Unit: case

- Suspected cases of plagiarism
- Suspected cases of redundant publication
- Total Infraction cases

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Infraction cases</th>
<th>Suspected cases of plagiarism</th>
<th>Suspected cases of redundant publication</th>
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<td>22</td>
<td>13</td>
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<td>2016</td>
<td>20</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>2017</td>
<td>14</td>
<td>13</td>
<td>6</td>
</tr>
</tbody>
</table>
Responsible conduct of research

The integrity of the research that maintains the core value of research, honesty, accuracy, efficiency, objectivity

www.cre.or.kr
History of CRE

1st
Chosun Univ.
GRP (Good Research Practice)
2007. 12 - 2011. 8

2nd
KI RD
CRE (Center for Research Ethics Information)
2011. 9 - 2014. 6

3rd
KI RD
CRE
2014. 7 - 2016. 9

Director of CRE
Prof. In-Jae Lee

4th
SNUe
CRE
2016. 10 - 2017. 10

5th
SNUe
CRE
2017. 11 - 2020. 3
Main Roles of CRE

- **Research Ethics Academic DB**
  You can read and search research ethics papers, reports, and proceedings all at once.

- **Research Ethics Guidelines**
  Provide research ethics guidelines and policies for the government, universities, and institutes, domestic and overseas academic journals.

- **Research Ethics Educational Materials**
  Provide research ethics textbooks, e-books, webtoons, videos, card news, infographics, and other educational content.

- **Responsible Conduct of Research and Prevention of Research Misconduct**
  Provides the ways to prevent research misconduct such as fabrication, falsification, plagiarism, disputes of authorship, redundant publication, and conflict of interests.

- **Research Ethics Issues/Trends**
  Provides academic materials of recent issues and trends, etc.

- **Researcher Community**
  Provides a sharing place of research ethics experiences and concerns of researchers in universities and research institutions.

- **Research Ethics Q&A Counseling Center**
  Provides a place to ask questions about the problems arising in the research workplace and publishing process. Counseling and responses from research ethics experts are available.

- **CRE**
  Introduce the Center for Research Ethics information’s history, functions, and activities.
## Contents owed by CRE

### Articles of Research Ethics Topics

<table>
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<tr>
<th>Topics</th>
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<td>Responsibility of Researcher</td>
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<td>Data Management</td>
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<td>Research Community</td>
<td>Laboratory Environment</td>
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## Contents of Research Ethics Issues & Trends

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### Academic DB of Research Ethics

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## Contents owned by CRE

### Guidelines of Research Ethics

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* Image: https://sites.google.com/site/markingieltsreading/home/guideline
### Contents owned by CRE

#### Educational Materials

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<td></td>
<td>webtoon</td>
<td>71</td>
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<tr>
<td></td>
<td>Infographic</td>
<td>52</td>
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<td>Card News</td>
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[https://www.youtube.com/watch?v=x6fxzBxJsc&feature=youtu.be](https://www.youtube.com/watch?v=x6fxzBxJsc&feature=youtu.be)
Activities of CRE

Seminars & Webinars

<table>
<thead>
<tr>
<th>Classification</th>
<th>Subject</th>
<th>Posted Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminars</td>
<td>KUCRE* Seminar (Held jointly with KUCRE)</td>
<td>6</td>
</tr>
<tr>
<td>Webinar</td>
<td>Online Real-time lecture</td>
<td>16</td>
</tr>
</tbody>
</table>

* KUCRE : Korean University Councils of Research Ethics

* Image
http://www.bataviamesinlaundry.com/seminar-usaha-laundry/
Activities of CRE

Q&A Counseling on research ethics and integrity

- **Q&A Review Board**
  - After receiving questions, a researcher of CRE first examines it, then the director of CRE confirms and replies.
  - Ask an expert in the related field for review, if needed
  - Answer within 5 business days of receiving the question
  - Consulted a total of 502 questions from 2016 to 2018

- **Telephone & E-mail Consulting**
  - Receive inconveniences from time to time and take actions
  - Asking simple questions or anxieties to ask questions
Subjects

- Online Question and Answers in the CRE from Jan. 2016 to Nov. 2018

- Q/A Consulting process
  
  1. **Step 1.** Researcher asks the question online
  2. **Step 2.** CRE prepares a draft of the answers asked by each researcher
  3. **Step 3.** Exchange opinions on the draft among the researchers at CRE
  4. **Step 4.** Ask the expert in the related field for review, if needed
  5. **Step 5.** Director confirms the contents and finalizes the answers

- Try to respond as soon as possible, within 5 days
# Research Ethics

## Frequency of Questions based on Topics (2016~2018)

<table>
<thead>
<tr>
<th>Research Ethics Topics</th>
<th>Frequency of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication Ethics</td>
<td>166</td>
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<tr>
<td>Research Ethics Work</td>
<td>99</td>
</tr>
<tr>
<td>Plagiarism</td>
<td>49</td>
</tr>
<tr>
<td>Request of Expert Linkage</td>
<td>28</td>
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<tr>
<td>Bio Ethics</td>
<td>24</td>
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<tr>
<td>Data Management</td>
<td>22</td>
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<tr>
<td>Intellectual Property Rights</td>
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<td>Etc.</td>
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<tr>
<td>Request of Resources</td>
<td>5</td>
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<tr>
<td>Fabrication</td>
<td>2</td>
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<tr>
<td>Falsification</td>
<td>1</td>
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</tbody>
</table>

**Graphic Representation:**

- **Research Ethics Work:** 22.4%
- **Publishing Ethics:** 37.6%
- **Plagiarism:** 11.1%
- **Request of Expert Linkage:** 6.3%
- **Etc.:** 3.2%
- **Intellectual Property Rights:** 5.4%
- **Data Management:** 5.0%
- **Bio Ethics:** 3.4%
- **Research Community:** 2.9%
- **Request of Resources:** 1.1%
- **Fabrication:** 0.5%
- **Falsification:** 0.2%
Future Challenges for Securing Research Ethics
Challenges in promoting research ethics consciousness among researchers

01 Create an atmosphere of RCR culture

Continuously help researchers to recognize the importance of research ethics autonomously and to have the ability to conduct responsible research.

- By eradicating erroneous belief that research misconduct is likely to be beneficial than complying with research ethics.

- By ensuring that maintaining research integrity is trusted and competitive.

- Prevention is more important than post verification and punishment.
Challenges in creating research ethics system

02 Establish a system that can support researchers in carrying out RCR

- Establish the control tower of research integrity at a governmental level
- Provide continuous and systematic research ethics education in universities and research institutes
- Establish research ethics dedicated department (division) and placement of RIO
- Develop and provide training programs
- Expansion of research ethics budget
Thank you

Contact us

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