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The development of research culture in Japanese public science: Academic responses to policy reforms

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Presented at

5th World Conference on Research Integrity:

Amsterdam, Netherlands – May 29, 2017



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Overview of Presentation

1. Introduction
2. Analytical methods, research design, or modes of inquiry
3. Data
4. Data Analysis / Findings
5. Discussion, Implications, and Conclusions



Why government policies?



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Government policies

- Strong initiatives to set priorities in education and research
- 2011 November
 - Okinawa Institute of Science and Technology Graduate University (OIST)
- 2014 September
 - Top Global University Project (MEXT)
- 2015 April
 - **Japan Agency for Medical Research and Development (AMED)**
 - **Cabinet Office, Government of Japan**
- 2016 November and 2017 April (application accepted) – Summer 2017
 - Designated National University “指定国立大学法人”



Government policies

- Top-down system
- Research ethics education (As of Sep 2015)
 - National universities (90% - 90 institutions)
 - Public universities (72.1% - 86 institutions)
 - Private universities (64.3% - 605 institutions)
 - All 1602 responses (97.3 % - keep reviewing and updating)



Why ministries and funding agencies are important?



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Responsible Ministries and Funding Agencies

- Financial and resource resources
- Political and scientific objectives
- Political administration and the scientific community



Historical Development

- The End of WW II - 2004
 - Under Ministry of Education, Culture, Sports, Science and Technology (MEXT)
- Since 2004
 - Various policies were initiated to change the governance and administrative system
 - Mobility of researchers
 - Comprehensive evaluation procedures



Japanese public science system

- Japanese public science system
 - 1. Universities
 - under jurisdiction of the **MEXT**
 - 2. **Government research institutes**
 - under jurisdiction of **the responsible ministries**
 - 3. Consortia and collaborative centers



Government research institutes

- **1. Cabinet Office, Government of Japan**
 - medical research
 - “Japan Agency for Medical Research and Development (AMED)”
- **2. Ministry of Internal Affairs and Communications (MIC)**
 - wireless network, cyber security, and other related topics
 - “National Institute of Information and Communications Technology (NICT)”
- **3. Ministry of Finance**
 - alcoholic beverage and other related topics
 - “National Research Institute of Brewing (MRIB)”
- **4. Ministry of Education, Culture, Sports, Science and Technology (MEXT)**
 - “RIKEN”
 - “National Institute for Material Science (NIMS)”
- **5. Ministry of Health, Labour and Welfare (MHLW)**
 - Employment security, child health and development, pension, and others
 - “National Cancer Center”
- **6. Ministry of Agriculture, Forestry and Fisheries (MAFF)**
 - Agriculture, forestry and fisheries industries
 - “Forestry and Forest Products Research Institute”
- **7. Ministry of Economy, Trade and Industry (METI)**
 - Japan’s economy and industry, energy and mineral resources, innovative technological seeds and commercialization, and others
 - “National Institute of Advanced Industrial Science and Technology”
- **8. Ministry of Land, Infrastructure, Transport and Tourism (MLIT)**
 - coast guard, touring industry, and others
 - “Port and Airport Research Institute”
- **9. Ministry of the Environment**
 - environmental policies, and other related topics
 - “National Institute for Environmental Studies”



Why government research institutes?



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Data by MEXT in 2016

- Misconduct cases (Fabrication, Falsification, Plagiarism) by MEXT in 2016
 - 7 cases (6:1)
- Misuse of Public Research Funds by MEXT in 2016
 - 4 cases (1:3)



2. Analytical methods, research design, or modes of inquiry



Theoretical/conceptual framework

- 1. Pertaining to legal status of institutions
- 2. Funding guidelines and opportunities
- 3. Recruitment of academic staff
- 4. Resource allocation
- 5. Research assessment



Analytical methods, research design, or modes of inquiry

- Qualitative Research (explanatory)
- Systematic analysis of the documents to derive patterns, models, or principles
- 2016 - 2017
 - National universities: 5 (2 - not in this study)
 - Government research institutes: 2



Analytical methods, research design, or modes of inquiry

- Data Analysis
 - A. Coding (Predefined codes / Open codes)
 - a. Break the data into the measurable chunks
 - **b. Unit of analysis**
 - c. Discourse analysis
 - B. Categorizing
 - **Look for patterns or groupings in the codes**
 - Obtain transferable dependable conclusions
 - C. Modeling
 - **Geographical mapping to create categories**
 - It can be traced back to original data



3. Data



Data

- The University of Tokyo (JSPS 1 / Nature 1)
 - (44.54% D - 55.46% I)
- Kyoto University (JSPS 2 / Nature 2)
 - (51.6% D - 48.4% I)
- Tohoku University (JSPS 4 / Nature 4)
 - (52.23% D - 47.77% I)
- Osaka University (JSPS 3 / Nature 3)
 - (50.56% D - 49.44% I)
- Nagoya University (JSPS 6 / Nature 7)
 - (43.33% D - 56.67% I)
- RIKEN / MEXT (JSPS 18 / Nature 5)
 - (53.48% D - 46.52% I)
- National Institute of Advanced Industrial Science and Technology (AIST) / METI - (JSPS 23 / Nature 12)
 - (66.05% D - 33.95% I)



4. Data Analysis / Findings



Universities and GRI

- **Universities:**

- Rules, guidelines
- Action plans
- Committees
- For INTL
- Educational program competitions - “Research ethics week”
- Online training mandatory (partial or comprehensive)

- **GRI**

- Rules, guidelines
- “Responsible Conduct in the Global Research Enterprise” by Inter Academy Council (IAC)
- SOP (sexual harassment, bullying, purchasing process, and others)
- Administrative training (MGMT)
- iThenticate (since 2014)



5. Discussion, Implications, and Conclusions



Implications

- For funding agencies
- For academic institutions
- For researchers
- For academic societies



Discussion and Conclusions

- Responsible ministries (MEXT and others)
- University and government research institutes
- External stakeholders - leading experts or professionals in leadership teams
- HR (experts in research ethics and integrity)



Concluding Thoughts

1. Cabinet Office, Government of Japan – (1)
2. Ministry of Internal Affairs and Communications – (1)
3. Ministry of Finance – (1)
4. MEXT – (8)
5. Ministry of Health, Labour and Welfare – (6)
6. Ministry of Agriculture, Forestry and Fisheries – (4)
7. Ministry of Economy, Trade and Industry – (3)
8. Ministry of Land, Infrastructure, Transport and Tourism – (3)
9. Ministry of the Environment – (1)



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Thank You!

Questions?



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