

# Analysis of attitudes toward research integrity and evaluation system of Japanese scientists in life-science fields

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## Objective

As global competition intensifies, the evaluation of researchers has become a major issue in the research environment. In this study, we conducted an attitude survey to extract academic and policy knowledge regarding how to create an environment in which researchers can exercise their original motivation and engage in healthy research activities.

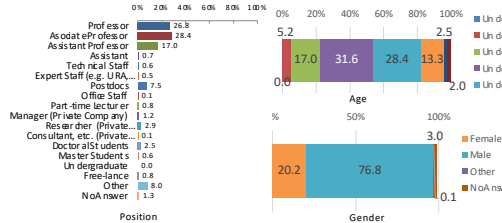
## Background and Materials

- To conduct a descriptive and exploratory analysis concerning scientists' attitudes toward research evaluation (RE) and research integrity (RI).
- Web-based questionnaire was conducted from **May 9 to July 8 in 2023**.
- Respondents were recruited via mailing list and homepages of academic societies on life science (we contacted 33 academic societies that belong to the Union of Japanese Societies for Biological Science)
- Finally, we collected 947 respondents, and **analyzed 717 respondents** without "Don't Know (DK)" answers
- This project was approved by the IRB in Osaka University Research Center on Ethical, Legal, and Social Issues (#ELSI Rinri\_006)

## Basic Structure of Questionnaire

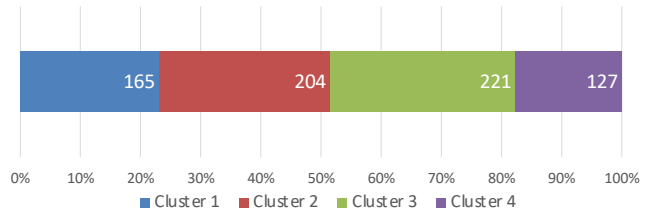
Main Questions	First aims of analysis
1: Joy of Research	Cluster analysis, Comparison of cluster
2: Tolerance level for outsourcing of research	Cluster analysis, Comparison of cluster
3: Tolerance level for conduct of co-researchers	Cluster analysis, Comparison of cluster
4: Important topics in the research evaluation for young scholars	Comparison of cluster
5: Important topics in the research evaluation for principal investigator (PI)	Comparison of cluster
6: Attitudes toward Journal Impact Factor (IF)	Comparison of cluster
7: Ideas on important index and priorities for research evaluation	Factor analysis, Comparison of cluster
8: Ideas on important factors for scientists' qualifications	Factor analysis, Comparison of cluster

## Demographics of respondents

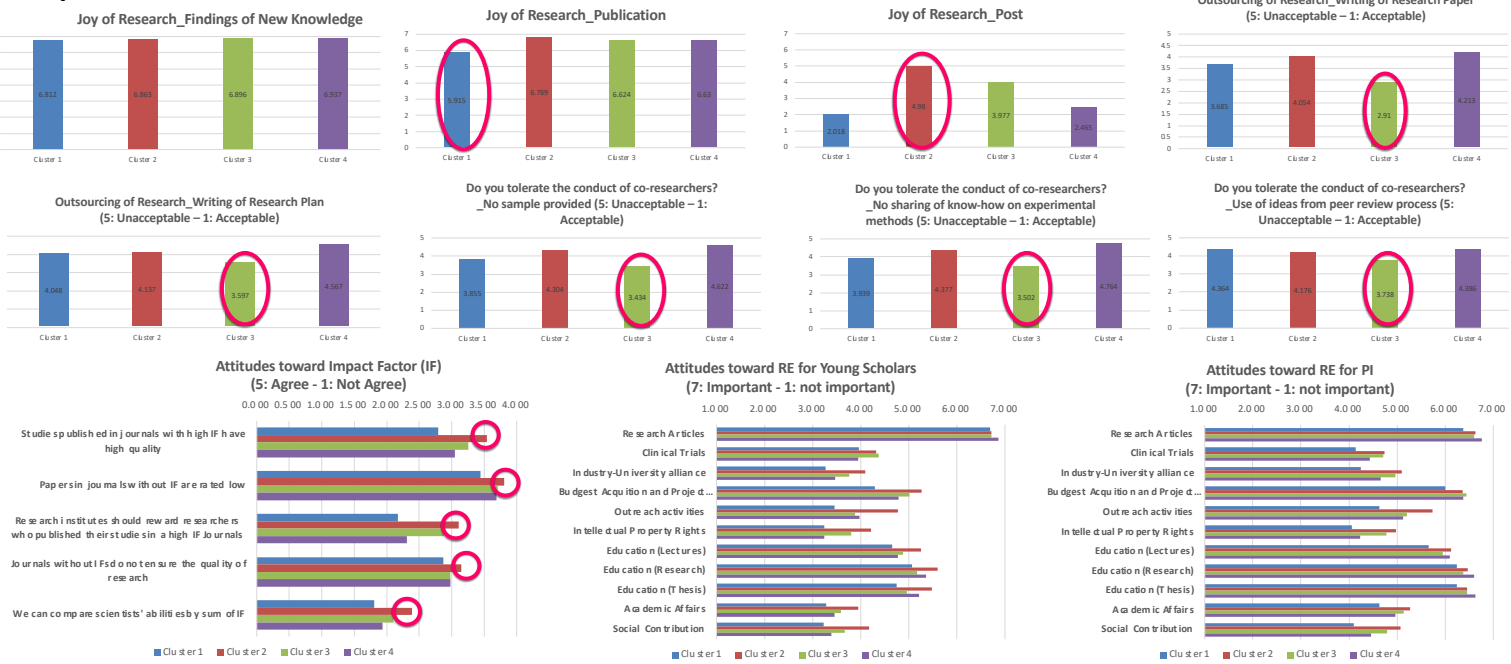


## Cluster analysis

- Based on questions in themes 1~3 (shown in the above table)
- $n = 717$
- Distance: Euclid
- Clustering: Ward method
- 4 clusters have been identified

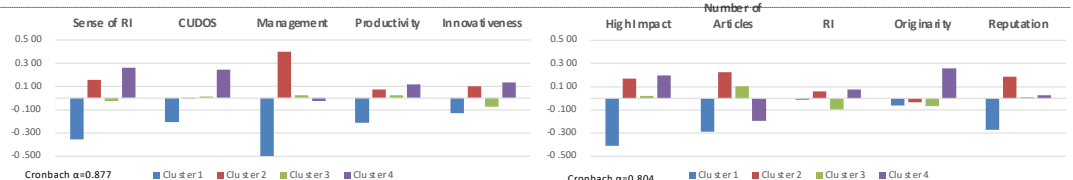


## Comparison of four clusters



## Factor analysis

(with primary factor method, Varimax rotation)



## Summary

We extracted and named four clusters.

- Cluster 1 (Research Immersion Type)** is primarily interested in discovering new things, with little concern for other aspects. There may be an overlook of misconduct due to indifference.
- Cluster 2 (Ascent-Oriented Type)** is motivated by promotions and securing research funding. Although they adapt well to the current evaluation system, they have a high awareness of research ethics simultaneously.
- Cluster 3 (Status Quo Affirmation Type)** has little commitment or ideals toward research activities. They are relatively reluctant to items related to RI.
- Cluster 4 (Craftsman-Oriented Type)** focuses on originality and quality rather than social recognition. They are relatively strict on research ethics.

## Other points:

- Based on results of cross-tab with age, the younger researchers seem to have already internalized the "competition" principle and meritocracy.
- This statement is not intended to assess the effectiveness of training on research fairness and ethics; however, the attitudes of groups such as Clusters 2 and 4 may be exploitable.
- Is it possible to approach Cluster 1?  
**The response required/reached/needed for each cluster is different.**