Research Errors and Publishing Integrity: Taiwanese Researchers' Awareness and Responses

Chien Chou 周倩

National Yang Ming Chiao Tung University (NYCU)

陽明交通大學

Taipei, Taiwan

About Me

National Yang Ming Chiao Tung University (NYCU)

- **Senior Vice President & Chief Ethics Officer,** 2023.3.1 -

- **Chair Professor**, Institute of Education, 2013 -

- **Director**, Office of Academic Ethics and Research Integrity, 2017 -

- **Chairperson**, Institutional Review Board (IRB), NYCU, 2016 - 2023

Taiwan Association for Academic Ethics Education (TAAEE)

- **Founding Chairperson**, 2020 -

COI Disclaimer:
The views and opinions expressed in this talk are those of mine; they do not necessarily reflect the position of any of my affiliations.

About Me

- **Research interests:** e-learning, digital literacy and ethics, research integrity
- **Specialty:** e-learning courseware development
- **Social services:** highly involved in the progresses of Taiwan research integrity campaign since 2010.
  - Help MOE and NSTC establish/amend their research integrity policy, regulations, and misconduct case handling procedures.
  - Help NSTC oversee research institutions and universities to implement RI policy, regulations, mandates and so on.
  - Help MOE review universities' misconduct cases.

Outline

- Background and Objectives

- Method

- Findings

- Conclusions

- Reflections

Note: Part of the findings was presented earlier as a poster at the Tenth International Peer Review Congress, Chicago, Sept 3-6, 2025.

Background

- Science is a process of self-correction.

  - Mistakes or errors are inevitable in the process.

- Several studies in the past have explored the sources of errors in scientific research.

  - Some empirical studies had been conducted on researchers in Europe and in the United States.

- Questions remain to be explored:
  - How often do researchers find errors in their own or others' work?
  - How do researchers deal with errors when they find them in others' or their own research?

Objectives

- This study addresses the lack of research on Asian, particularly Taiwanese researchers' perceptions and practical experiences in handling research errors, expanding understanding beyond Western contexts.

- The objectives were:

  1. To identify the types and frequency of errors researchers found in journal articles published by others and themselves.

  2. To understand how researchers address errors in others' and their own journal articles.

Method

- Instrument: self-developed **Error in Research (ER) questionnaire**. Seven experts from various fields (e.g., medicine, physics, chemistry, biology, psychology, education, engineering) participated in the compilation.

- Three parts of questionnaire:
  - Basic information
  - Types and frequency of errors found in others' and their own published journal articles (34 items in 7 categories, four-point Likert scale)
  - Error-addressing methods for respondents' own and others' errors in the published journal articles

Method

- Snowball sampling
- Participants: A total of 593 researchers
  - Taiwanese professors and researchers (312, 52.61%); PhD students with academic publishing experiences (281, 47.39%)
  - More than half of the respondents were female (303, 51.10%).
  - The largest age group was 30-39 years old (235, 39.63%).
  - Most of the respondents (393, 66.27%) had less than nine years of research experience.
  - More than 80% of respondents read their own published articles occasionally or frequently.
  - More than 90% of respondents conducted systematic research occasionally or frequently.

Finding 1

The Types and Frequency of Errors Found in Others' and One's Own Published Articles

I. Research design (6 items)

II. Data and information (8 items)

III. Journal publication (3 items)

IV. Conflicts of interest (2 items)

V. Writing and citation (12 items)

VI. Authorship (2 items)

VII. Other (1 item)

.

- A total of 34 types
- Types are paired:
  - The same items are used for both others and themselves
- 4-Likert scale
  - 4 = often
  - 3 = occasionally
 - 2 = seldom
  - 1 = never

Finding 1

The Types and Frequency of Errors Found in Others' and One's Own Published Articles

- In terms of the overall response rate, most answers fall between 3 (occasionally) and 2 (seldom).

- None of the types receive an average rating close to 4 (often) or of 1 (never).

- Errors may occur at every stage of research, and can be found by others or selves.

Finding 1

The Types and Frequency of Errors Found in Others' and One's Own Published Articles

- Researchers were more likely to find errors in other people's published articles.
- The paired t-test of all 34 types shows a significant difference.
- The means of 22 types of others' errors were above the theoretical mean of 2.5; only one type of their own error has the mean of 2.5.

Others (means)
2.33   2.86

Own (means)
1.92   2.50

1 Never   2 Seldom   3 Occasionally   4 Often
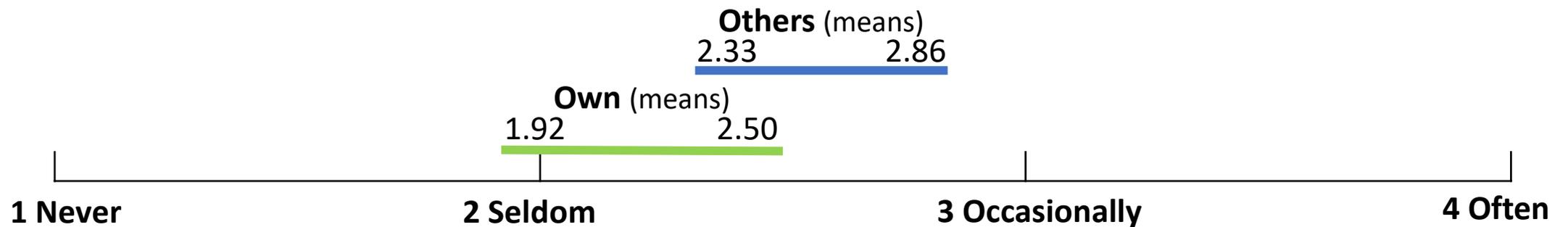
Finding 1

The Top 10 Types of Errors Found in Published Articles

Others' Errors	My Own Errors
1. Typos or missing words	1. Typos or missing words
2. Misunderstanding or misapplication of theory	2. Misinterpretation of previous research
3. Misinterpretation of previous research	3. Misunderstanding or misapplication of theory
4. Incorrect hypothesis	4. Incorrect hypothesis
5. Incorrect statistical analysis	5. Incomplete research notes
6. Inadequate paraphrasing when quoting others	6. Missing or incorrect reference information
7. Failure to properly cite the source when quoting others	7. Improper exclusion of undesirable data
8. Failure to clearly cite others' concepts	8. Incorrect data generation
9. Misuse of research methods	9. Incorrect statistical analysis
10. Misleading wording in the text	10. Incomplete or improper data storage

Finding 2

Methods for Addressing Others' and One's Own Errors

- In general, most respondents took no action regarding the errors per se but used as lessons for themselves or others (such as students).

- When observing errors in **others'** published articles:

  - About 80% of the respondents had used others' errors as lessons to avoid making the same errors in the future.
  - Over 30% did nothing.
  - More than 20% had addressed or highlighted the errors in their own subsequent studies.
  - Over 10% of respondents had discussed the errors on social media.
  - Only a small portion (3.37%) had reported the errors to the journal or made an allegation of research misconduct.

Finding 2

Methods for Addressing Others' and One's Own Errors

- Respondents have different methods when they find errors in **their own** published articles:
  - Over 40% had submitted a proposed correction notice to the journal.
  - 40% indicated that they took no action and only used the errors to avoid making the same mistakes in the future.
  - Almost 14% had done nothing at all.
  - About 10% reported requesting a correction after others pointed out the errors.
  - A small portion of respondents (16%) stated that they have submitted a retraction notice to the journal.

Conclusions

- Taiwanese researchers tend to use errors (others' or their own) as cautionary examples for themselves and for others.

- Although correcting errors is a positive step, they tend to be more observant of others' errors and more reflective in correcting their own.

  - suggesting Taiwanese researchers tend to take errors more personally.

Conclusions

- This study differs from previous research on bibliometric analysis or interviews with individuals who have experienced in retracting articles.

- The **questionnaire method**, which surveys **general researchers**, provides first-hand empirical data from a different viewpoint.

- The findings help gain a **deeper understanding of research errors**, enabling us to build a consensus within the academic community about their occurrence and coping strategies.

- All the **error types** listed in the questionnaire can be used for self-examination in the researcher education.

Reflections

1. **What are the most common <u>challenges</u> in Taiwan regarding corrections and retractions?**

    - As the first empirical study in Taiwan, there is no local literature accumulation.

    - In my personal observation, the corrective mechanism for scientific errors has not been publicly or widely discussed.

    - There are no governmental or institutional-level policies or guidelines.

    - It seems that researchers in various fields conducted correction/retraction according to the publishers or journals of their own fields.

Reflections

1. **What are the most common <u>challenges</u> in Taiwan regarding corrections and retractions?**

   - Except for a few fields, most graduate students need to write their theses (master's and/or Ph.D.), so errors are often detected.

   - How to deal with errors in these theses has become the focus of discussions in university integrity oversight.

     - Is it necessary to give the degree theses greater tolerance for (minor) errors or the number of corrections to the database?

     - What are the responsibilities of advisors? Should they be jointly punished?

Reflections

2. **How can Taiwanese institutions, publishers, and funders <u>collaborate to strengthen</u> integrity systems?**

- Often requires a **top-down** approach or requirements.

- The funding agencies need to take the initiative, and with the participation of the publisher, the research institutions and universities will follow.

Reflections

3. How can <u>incentive structures</u> and <u>assessment frameworks</u> better support timely corrections in Taiwan?

- Conceptually, we need to reverse the idea that "correction" or "retraction" is a bad indicator of scientific research.

- Practically, academia should not assess a researcher's productivity or the quality of research results based solely on the number of corrections or directly equate corrections or retractions with research misconduct.

Reflections

4. **What promising <u>practices</u> or <u>models</u> are emerging from Taiwanese contexts?**

- Based on our experience in promoting academic ethics and research integrity in the past 15 years, we will let **research funding agencies**

  - know about international trends and requirements,

  - hold lectures/seminars/workshops,

  - develop education and training materials, and

  - change the research award and subsidy mechanism to encourage researchers to make corrections or even retractions.

Q&A

NYCU NATIONAL YANG MING CHIAO TUNG UNIVERSITY

cchou@nycu.edu.tw