Best Practices in Academic/Clinical Department Administration and Scholarship of Discovery

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Best Practices
in Academic/Clinical Department Administration and Scholarship of Discovery

Venue: University of Medical Sciences, Ondo City

Date: July 9 and 10, 2018

CHICAGO STATE UNIVERSITY

Shout out to My Friends in Chi-Town

9:00 – 10:00 am: First Presentation

Scholarship of Discovery -

Publishing in High Impact Journals: Common Pitfalls

10:00 – 10:30 am: Discussion and Questions

Presentation Overview

Covers the following 7 major topics:

1. Search for the scholarship of discovery productivity by country

2. Search for journal ranking

3. Selection of the right journal

4. Identification of the common mistakes in manuscripts submitted for publication

5. Sample size estimation

6. Common issues with research questionnaires

7. Determination of the readability of a questionnaire

"Research must continue to be the centerpiece of intellectual life, and our commitment to research must grow because our problems are growing."

"The connectedness of things is what the great university is all about, and I believe the great university in the coming century will be described as a community of scholars."

Ernest Boyer - Proponent of Scholarship of Teaching and Learning

Search for the Scholarship of Discovery Productivity by Country

Search for the Scholarship Impact by Country

- Access SCImago Journal & Country Rank to locate country-specific research quality and productivity

  o www.scimagojr.com

- Select "Country Rankings." Select one or more ranking parameters (subject area, subject category, and region). Then click "Refresh."

- E.g.; select the subject area "Health Professions" and the subject category "Physiotherapy."

- A list of countries is displayed. You can choose to re-order the list by the number of cites, the number of cites per document, the h-index, etc.

- Click on a country to view the research impact of this country, including figures or interactive graphics

Scholarship of Discovery Ranking by Country

Rank	Country	Document	H-index
1	United States	11,036,243	20,772
2	China	5,133,924	7,123
3	United Kingdom	3,150,874	12,814
4	Germany	2,790,169	11,315
5	Japan	2,539,441	9,206
6	France	1,967,157	10,237
7	Canada	1,594,391	10,338
8	Italy	1,583,746	8,989
9	India	1,472,192	5,211
10	Spain	1,256,556	7,751
11	Australia	1,226,552	8,481
12	South Korea	1,004,042	5,761
13	Russian Federation	956,025	5,031
14	Netherlands	886,135	8,931
15	Brazil	834,526	4,891

Search for Journal Ranking

Search for Journal Ranking

- Not all journals are equal in prestige and impact

- Journals are therefore ranked

- Journal ranking is the relative importance of a journal within a subject discipline, especially when compared with other journals in the same field.

- Journal ranking outcome can assist researchers to decide where to publish an article.

- University administrators can use journal ranking information to determine if a researcher has published in high impact journals or not.

- Librarians can use ranking data information to make objective decision on journal subscription

Journal Ranking: Subscription databases

- There are databases that provides information on the ranking of journals by disciplines

- Some of the databases are by subscription and others are free.

- The following are databases available only be subscription:
  - Journal Citation Report
  - Scopus Journal Analyzer

Journal Ranking Free databases

- SJR SCImago Journal & Country Rank:
  - www.scimagojr.com
- JournalM3trics:
  - www.journalmetrics.com
- Eigenfactor.org
  - www.eigenfactor.org
- Google Scholar Metrics
  - http://scholar.google.com/intl/en/scholar/metrics.html

Journal Ranking Free databases

- SJR SCImago Journal & Country Rank:
  - www.scimagojr.com
- Other journal rankings
  - European Reference Index for the Humanities (ERIH)
    - https://dbh.nsd.uib.no/publiseringskanaler/erih/searchForm
  o Master Journal List by Thomson Reuters
    - http://ip-science.thomsonreuters.com/mjl

    Excellence in Australian Research (ERA)
    - http://www.arc.gov.au/excellence-research-australia

- Harzing.com Journal Quality List
- http://www.harzing.com/jql.htm

The Top Ranked Journals in Medicine and Health Professions

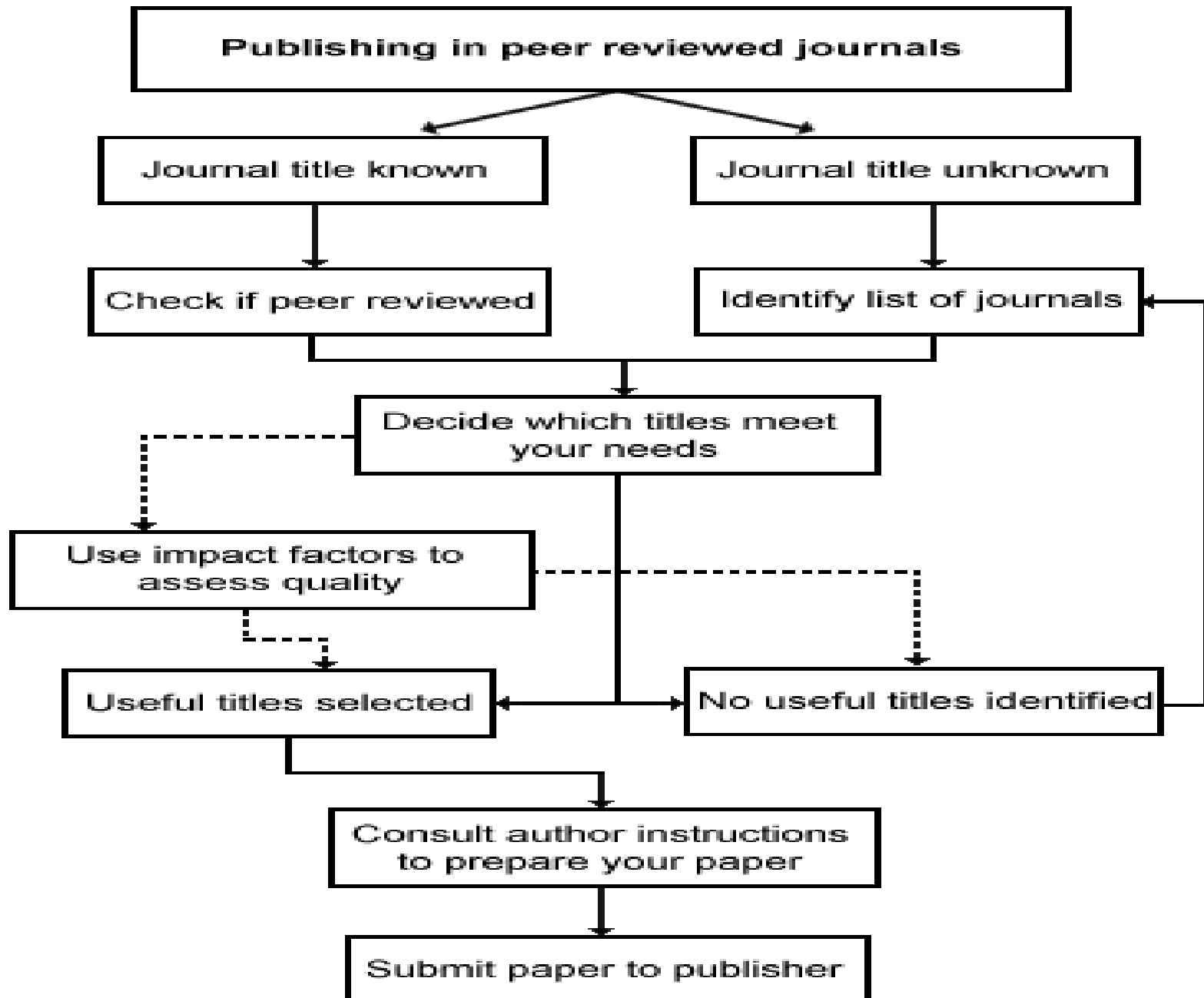|	Medicine	Health Professions
1	Cancer Journal for Clinicians	Morbidity & Mortality Weekly Report
2	Nature Reviews Genetics	Vital and health statistics
3	Morbidity & Mortality Weekly Report	American J. of Sports Medicine
4	Nature Reviews Immunology	Sports Medicine Journal
5	Nature Reviews Cancer	British Journal of Sports Medicine
6	Annual Review of Immunology journal	Bulletin of Faculty of Pharmacy, Cairo University Journal
7	Vital and Health Statistics.	Journal of Bone and Joint Surgery -
8	New England Journal of Medicine	Human Brain Mapping Journal
9	Nature Medicine	Ultrasound in Obstetrics & Gynecol.
10	Physiological Reviews	Intern. J. Behav. Nutri & Phys. Act.
11	The Lancet Oncology	J. of Shoulder and Elbow Surgery
12	The Lancet	J. of Cardiov. Magnetic Resonance

- **Altmetrics** is a metric used to measure the **impact** of a publication by monitoring its dissemination in **social media.**

- Altmetrics calculates the number of times it is mentioned in social media sites such as tweeters, Facebook, and blogs and paper-sharing platforms or reference managers such as Mendeley. Limitations:

  – Sources are not peer-reviewed and still in early development stages.

  – The meaning of the metrics is not yet well understood; therefore, it should be used with a dose of caution in conjunction with existing traditional methods for gauging scholarship.
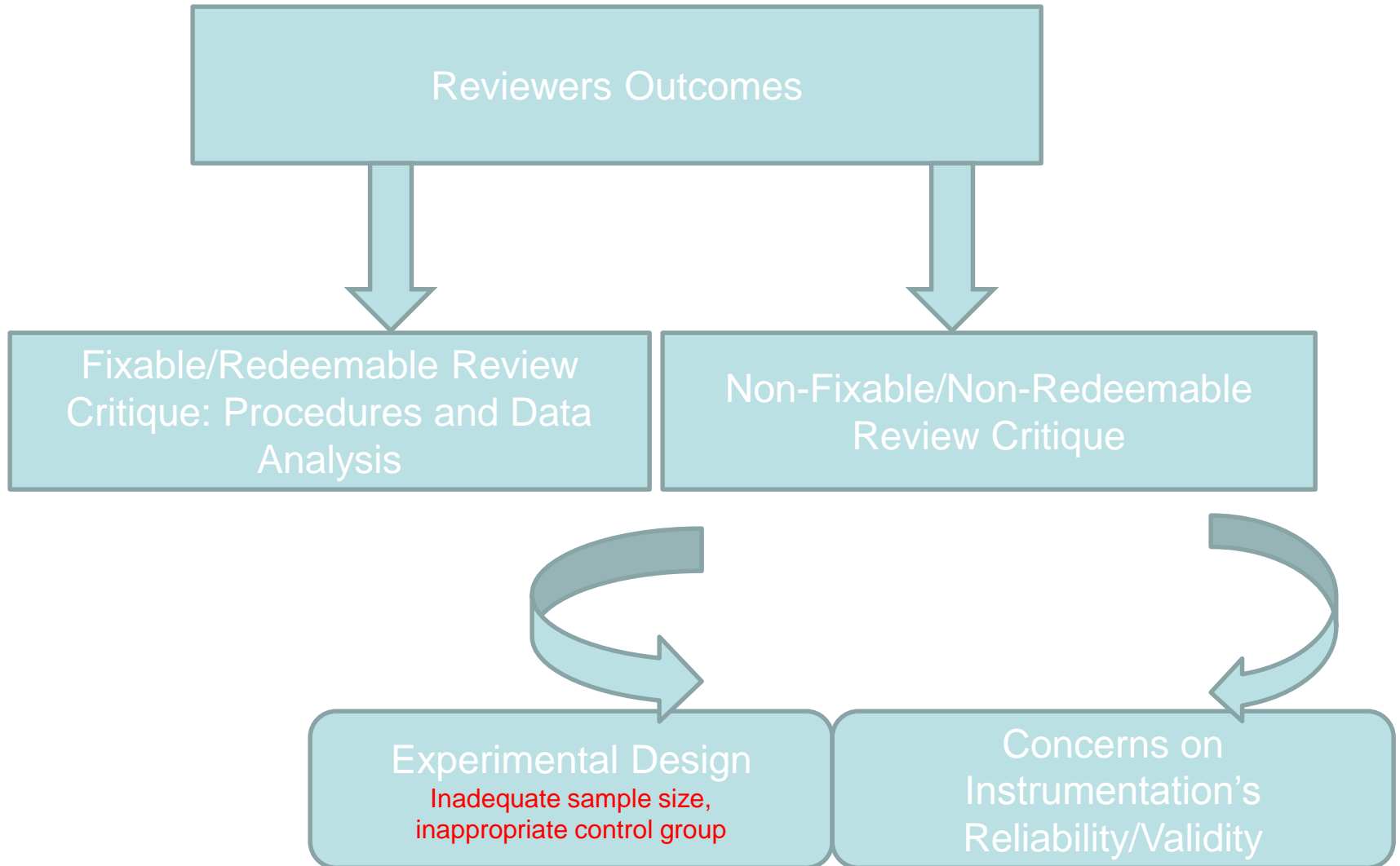
Altmetrics tools

- Install a [free bookmarklet](#) offered by [Altmetric.com](#)

- Individuals can make use of altmetric tools to identify the social impact of a publication

- You can request for a free, non-commercial API key from Altmetric.com to integrate Altmetric data into your projects

Selection of the Right Journal

Publishing in peer reviewed journals

Journal title known

Journal title unknown

Check if peer reviewed

Identify list of journals

Decide which titles meet your needs

Use impact factors to assess quality

Useful titles selected

No useful titles identified

Consult author instructions to prepare your paper

Submit paper to publisher

Digesting the Reviewer's Comment

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Reviewers Outcomes
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Fixable/Redeemable Review Critique: Procedures and Data Analysis

Non-Fixable/Non-Redeemable Review Critique

Experimental Design
Inadequate sample size, inappropriate control group

Concerns on Instrumentation's Reliability/Validity

Template for Responding to Reviewer's Comments

	Reviewer #1	
S#	Comments	Response
1	Copy and paste each of the reviewer's critic here	▪Address your rebuttal to the critic. ▪You either agree or disagree ▪We addressed the comment on page x, paragraph y of the revised manuscript
Nth		
	Reviewer #2	
S#	Comments	Response
1	Copy and paste each of the reviewer's critic here	Repeat as hithertofore
Nth		

Identification of the Common Mistakes in Manuscripts Submitted for Publication

Non-Redeemable (Non- Fixable) Review Critiques

Non-Redeemable Review Critiques

Flaws with Experimental Design

Flaws with the Psychometric Properties of the Questionnaire
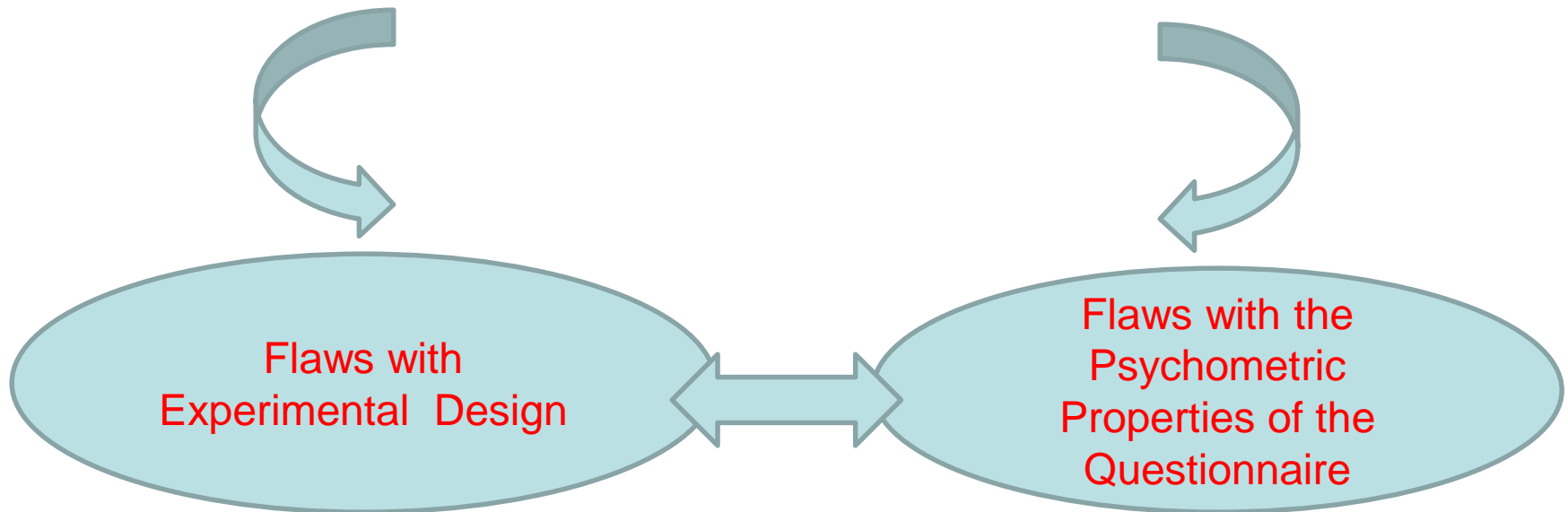
Non-Redeemable Review Critiques Relating to Experimental Design

Experimental Design Flaws

- Research design too weak to answer the research question

- Failure to use randomization

- No sample size estimation: Inadequate N

- Failure to use report "double blinding" if needed

- Failure to report initial equality of baseline characteristics and comparability of study groups
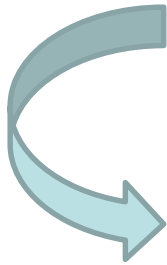
- Use of inappropriate control group

Flaws with the Research Questionnaire

- Psychometric property of the questionnaire – reliability/validity

Redeemable (Fixable) Review Critiques

Redeemable Review Critiques

Flaws with the Introduction Section and Experimental Design

Flaws with the Data Analysis and Discussion Section

Redeemable Review Critiques Relating to the Introduction Section

- Failure to review pertinent or recent studies
- Study aims and purpose not clearly stated
- No hypothesis and p-value was stated
- No explicit statement of the tested Null-hypotheses
- Operational terms were not clearly stated

Redeemable Review Critiques Relating to Introduction Section Experimental Design

- Failure to report number of participants or observations

- Method of randomization not clearly stated

- Failure to report withdrawals (attrition) from the study

- No clear *a-prior* statement or description of the Null-Hypothesis under investigation

- Inappropriate testing for equality of baseline characteristics

- Referring to unusual or obscure methods without explanation or reference

Redeemable Review Critiques Relating to Data Analysis

- Failure to specify/define all tests used clearly and correctly

- Use of wrong statistical tests

- Incompatibility of statistical test with type of data collected

- Unpaired tests for paired data or vice versa

- Inappropriate use of parametric methods

- Use of an inappropriate test for the hypothesis under investigation

- Failure to include a multiple-comparison correction

Redeemable Review Critiques Relating to Data Analysis

- Failure to prove test assumptions

- Unequal sample sizes for paired t-test

- Improper multiple pair-wise comparisons of more than two groups

- Inappropriate *post-hoc* subgroup analysis

- Typical errors with *Student's* t-test

- Use of an unpaired t-test for paired data or vice versa

- Typical errors with *Chi-Square* (X) test

- No Yates-continuity correction reported for small sample size

Redeemable Review Critiques Relating to Data Analysis

- Use of *Chi-Square* when expected number in a cell are <5
- Failure to use multivariate techniques to adjust for confounding factors
- Failure to state if t-test was paired or unpaired
- Wrong names for statistical tests used
- Failure to specify which test was applied on a given set of data if more than one test was done
- Leaving readers guessing with "parametric test was used "where appropriate" statement

Redeemable Review Critiques Relating to Data Analysis

- Inadequate graphical or numerical description of basic data

- Means presented but no indication of variability (SD) of the data

- Giving SE instead of SD to describe data

- Use of Mean (SD) to describe no-normal data; e.g., frequency distribution

- Failure to define +/- notations for describing variability or use of unlabeled error bars

- Inappropriate and poor reporting of results

Redeemable Review Critiques Relating to Data Analysis

- Results reported only as p-values; no confidence intervals presented

- Confidence intervals reported for each group rather than contrasts

- "p= NS", "p<0.05" or other arbitrary thresholds instead of reporting exact p-values

- Numerical information given to an unrealistic level of precision.

- Reporting decimal point level not consistent with the sensitivity of the instrument used

Redeemable Review Critiques Relating to Data Analysis

- Wrong interpretation of results
- "Non-significant" interpreted as "no effect", no "no difference"
- Significance claimed without data analysis or statistical test mentioned
- Poor interpretation of results
- Use of multiple t-test instead of ANOVA with post-hoc test

Redeemable Review Critiques Relating to Discussion Section

- Failure to connect findings to the existing body of knowledge

- Repetition of the result section

- Drawing conclusions not supported by the study data

- Failure to discuss the limitations of the study

- Failure to discuss the clinical/practical implications of the study

- Failure to discuss sources of potential bias and confounding factors

- Missing discussion of the problem of multiple significance testing if done

Sample Size Estimation

Sample Size Estimation
https://www.checkmarket.com/blog/how-to-estimate-your-population-and-survey-sample-size/

Determination of Sample Size

There are three general methods available:

- Manual calculation Method
- Estimation from Indicative Table
  - Margin of error +_ 5
  - Confidence level – 95% or 99%
- Computational platforms

Acceptable Response Rate

- For an online survey, a response rate of 20% is considered **"good"** A 30% response rate is considered to be   "*really, really* **good.**"

Common Issues With Research Questionnaires

Common Issues With Research Questionnaires

- Poor or inadequate description of the research questionnaire; makes replication of study difficult

- Lack of information on the psychometric properties - reliability and validity

- You have to establish the reliability if the instrument was adapted from another culture or different patient population

- Adaptation of an instrument from another language – Need to demonstrate cross-cultural and conceptual equivalence

- Readability information is now commonly required

Common Issues With Research Questionnaires

- **Translation of Questionnaire To a Different Language**
- To achieve cross-cultural and conceptual equivalence, the WHO's method* is recommended.
- It includes the following steps:
  - Forward translation
  - Expert panel back-translation
  - Pre-testing and cognitive interviewing
  - Final version

Determination of the Readability of a Questionnaire

Readability Tests

- Readability Tests are designed to evaluate how difficult a text or questionnaire is to understand in English.

- There are two tests, the Flesch Reading Ease, and the Flesch–Kincaid Grade Level.

- Although they use the same core measures (word length and sentence length), they have different weighting factors.

- The results of the two tests correlate approximately inversely: a text with a comparatively high score on the Reading Ease test should have a lower score on the Grade Level test.

- Rudolf Flesch devised both systems while J. Peter Kincaid developed the latter for the United States Navy.

Readability-Score.Com

https://readability-score.com/

- Copy and paste the web address into a browser and Open up the web page

- Cut and paste the text or questionnaire inside the rectangular space

- Example: I copied and pasted the:

UNIVERSITY OF CALIFORNIA AT BERKELEY

TEMPLATE CONSENT FORM – SOCIAL-BEHAVIORAL STUDY

CONSENT TO PARTICIPATE IN RESEARCH STUDY

Interpretation of Readability Print out put

- **Flesch Reading Ease Score:** Scores usually range between 0 and 100. A higher score indicates easier readability

- Flesch–Kincaid Grade Level: Scores usually corresponds to grade level or year of education

- Other Readability Formula Scores/Indexes

Gunning-Fog Score

Coleman-Liau Index

SMOG Index

Automated Readability Index

Flesch–Kincaid Grade Level

- **Flesch–Kincaid Grade Level** readability tests are used extensively in the field of education.

- The "Flesch–Kincaid Grade Level Formula" instead presents a score as a U.S. grade level, making it easier for teachers, parents, librarians, and others to judge the readability level of various books and texts.

- It can also mean the number of years of education generally required to understand this text, relevant when the formula results in a number greater than 10.

Flesch Reading Ease Test Score

Higher scores indicate that the questionnaire or text is easier to read; lower numbers reflect questionnaire or text that are more difficult to read.

	Score	Interpretation/Meaning
1	90.0–100.0	Easily understood by an average 11-year-old student
2	60.0–70.0	Easily understood by 13- to 15-year-old students
3	0-30	Best understood by university graduates

Sample Print out

Readability Measure   Grade Levels

- Flesch-Kincaid Grade Level   13.6
- Gunning Fog Index   11.7
- Coleman-Liau Index   18.1
- SMOG Index   14.0
- Automated Readability Index   13.4
- Average Grade Level   14.2

- Flesch Reading Ease   17.2

# 10:00 – 10:30 am: Discussion and Questions

Feel free to contact me by email at jbalogun@csu.edu

Workshop Learning Objectives

At the end of the training, the learner will be able to:

- Create an academic culture of using evidence to make administrative decisions within their department.

- Design and implement a comprehensive assessment program for an academic department.

- Articulate evidence-based teaching strategies and recipe for high quality education.

- Construct measurable course objectives, and student learning outcomes for an academic program.

- Discuss different types of research approaches, experimental designs and quantitative data analysis, testing for the assumptions of parametric and non-parametric statistics.

- Discern areas of weakness in published manuscripts.

- Identify inappropriate use of statistics.

- Determine the clinical significance of an intervention study.
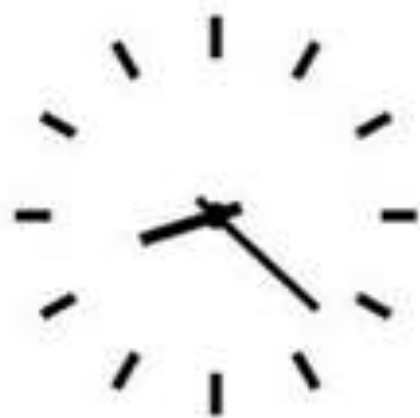
Q & A time

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