ENGINEERING INTEGRITY: USING TEXT-MATCHING SOFTWARE IN A GRADUATE LEVEL ENGINEERING COURSE

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KATHERINE (KATIE) CROSSMAN, ROBYN PAUL, LALEH BEHJAT, MILANA TRIFKOVIC, ELISE FEAR, SARAH ELAINE EATON, ROBIN YATES

OUTLINE

- Introduction: The Statement of the Problem
- Conceptual Framework: Previous Research
- Methodology
- Complexities
- Results
- Discussion: Implications of the Study

INTRODUCTION

- Academic misconduct is an unfortunate reality for many post-secondary level educators across disciplines
- There is a paucity of Canadian research on Academic Integrity (Eaton, Crossman & Edino, 2019)
- This paper reports on an inter-disciplinary project to investigate the potential for text-matching software to understand, prevent, and avoid plagiarism by graduate level engineering students

RATIONALE

- Text matching software has the potential to:
  - help students understand and avoid plagiarism (Zaza & McKenzie, 2018)
  - faculty identify instances of plagiarism in an engineering course (Cooper & Bullard, 2014)
- Its acceptance within academic contexts is uneven

  1. the punitive nature of the software use,

  2. the potential for it to be used as a tool for cheating students to “beat the system”, and

  3. privacy concerns (Savage, 2004) about the software

METHODOLOGY & APPROACH

Assignments submitted in a graduate-level engineering communication course were analyzed using text-matching software, *Ithenticate*

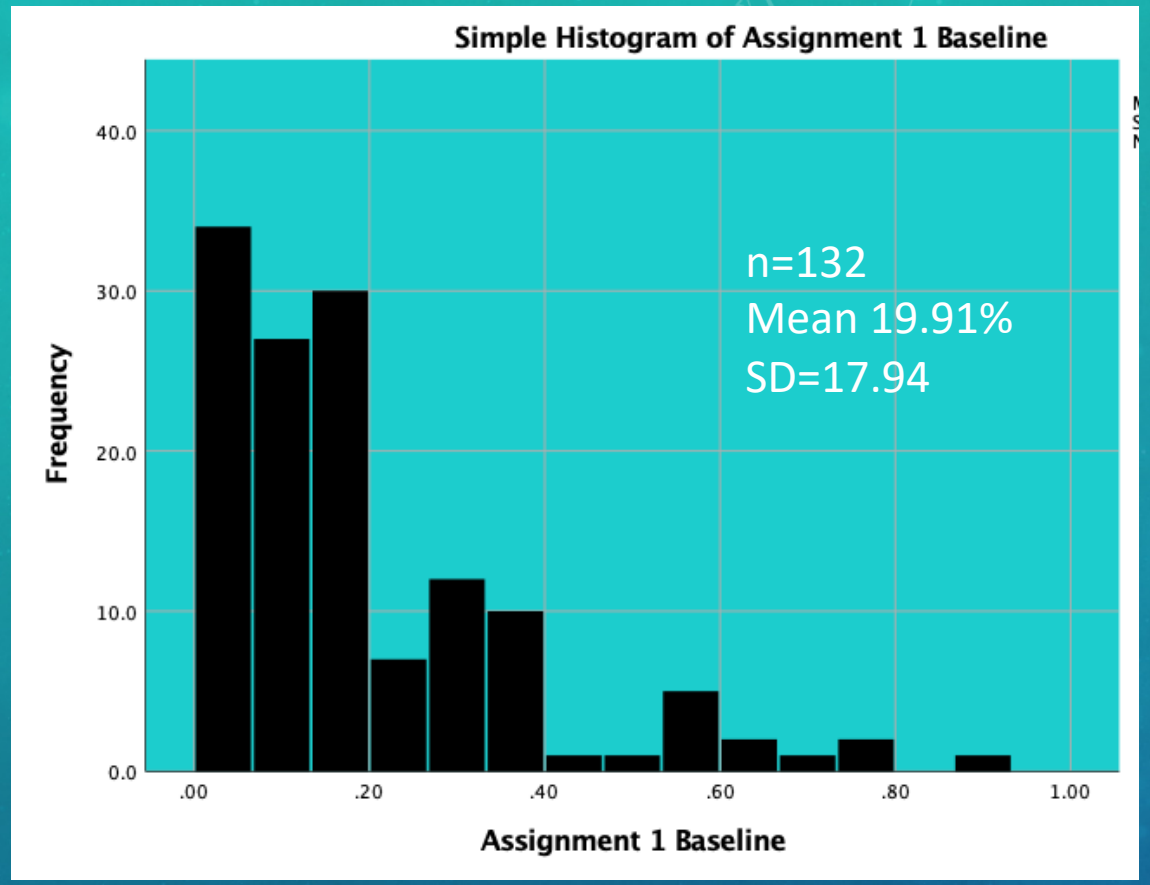
1. collection and analysis of baseline data from students enrolled in a graduate-level Engineering course (n=132)
2. workshop about academic integrity, text matching software, paraphrasing, and citation
3. deception debriefing and collection of consent for continued participation
4. collection and analysis of assignment 2 data (n=106; 80%)
5. comparison of pre- and post-intervention workshop data

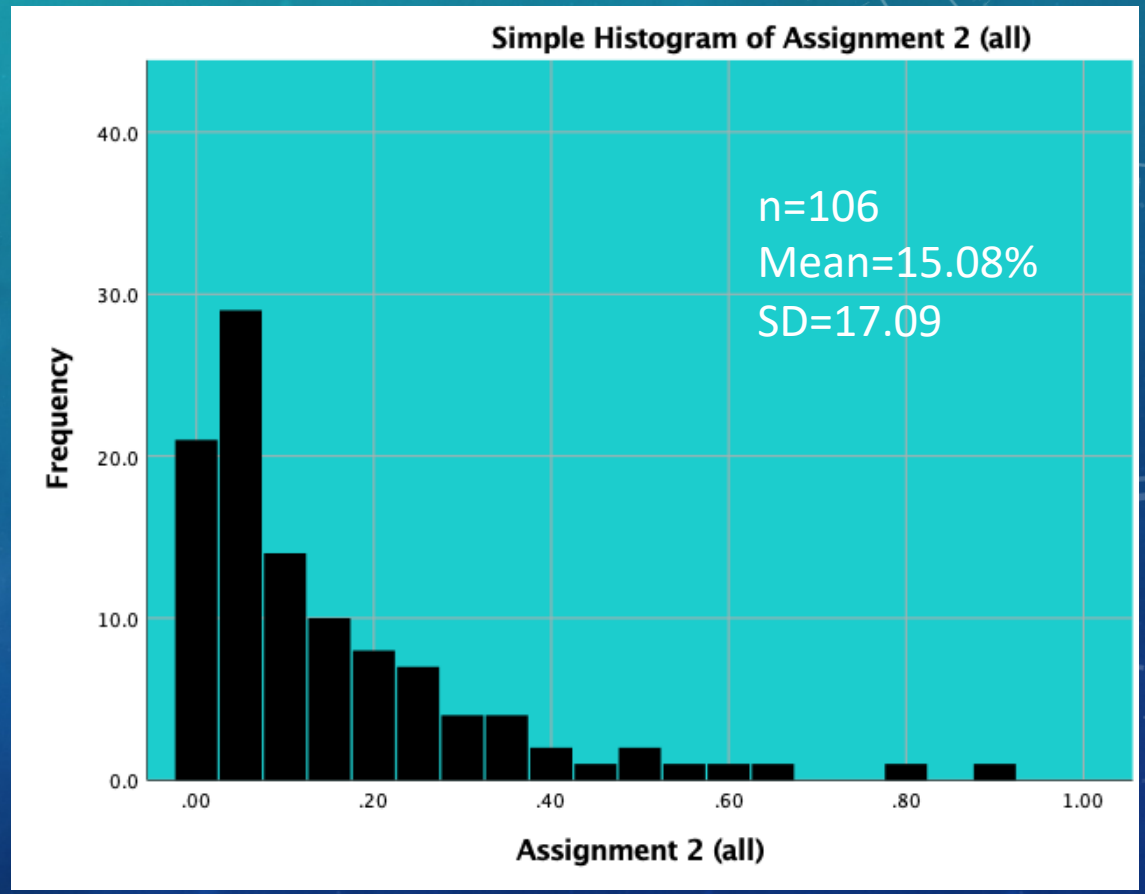
Approved by CFREB, with conditions (aggregated data, student amnesty)

COMPLEXITIES

- The two assignments were written by the same students, although we have different sample sizes
  - Baseline: all students in the class, n=132,
  - Assignment 2: consenting participants, n=106
- The assignments were different
  - Baseline: impact study
  - Assignment 2: extended abstract
- Software issues, Assignment 2:
  - Reference list not identified, flagged as similar, erroneously inflated (n=15, mean=23.79%, SD=20.38)
- Self-citation, Assignment 2:
  - Previously published research, inflated (n=8, mean=49.75, SD=25.26)

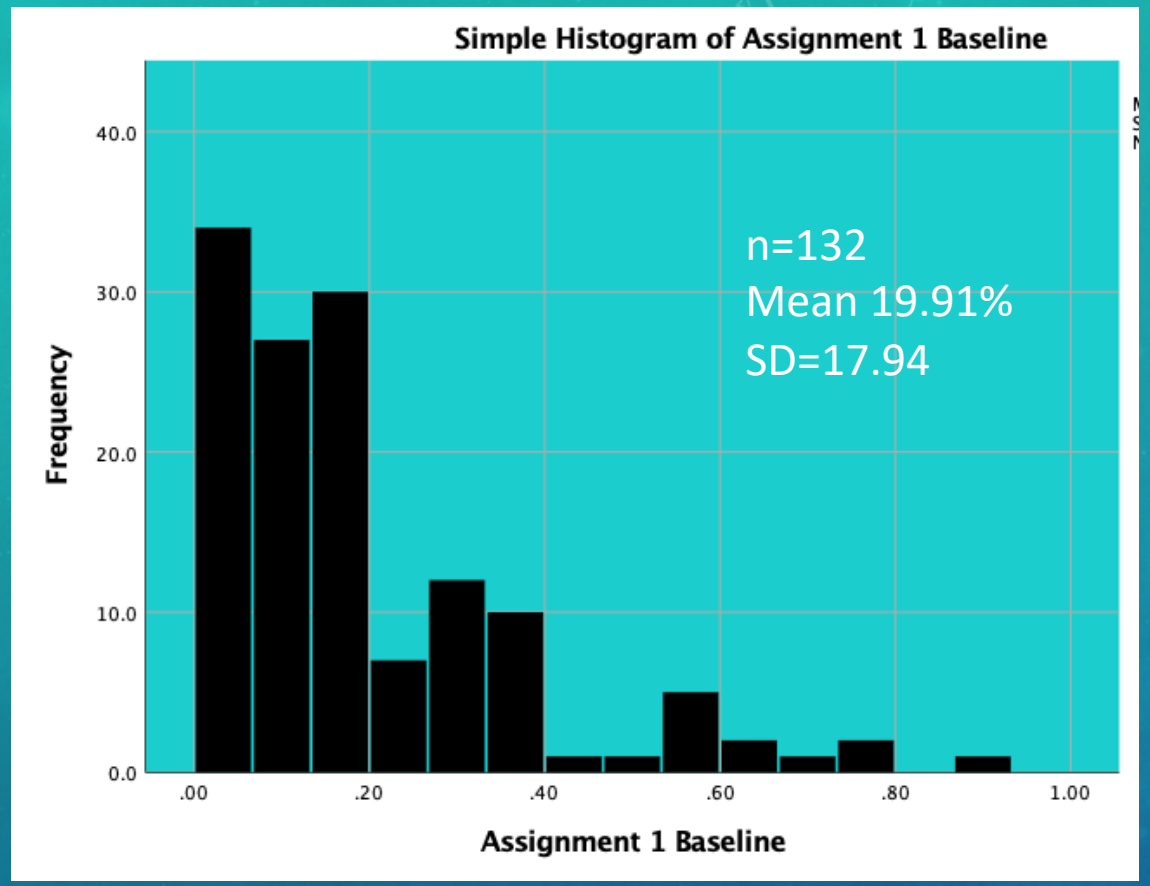
RESULTS

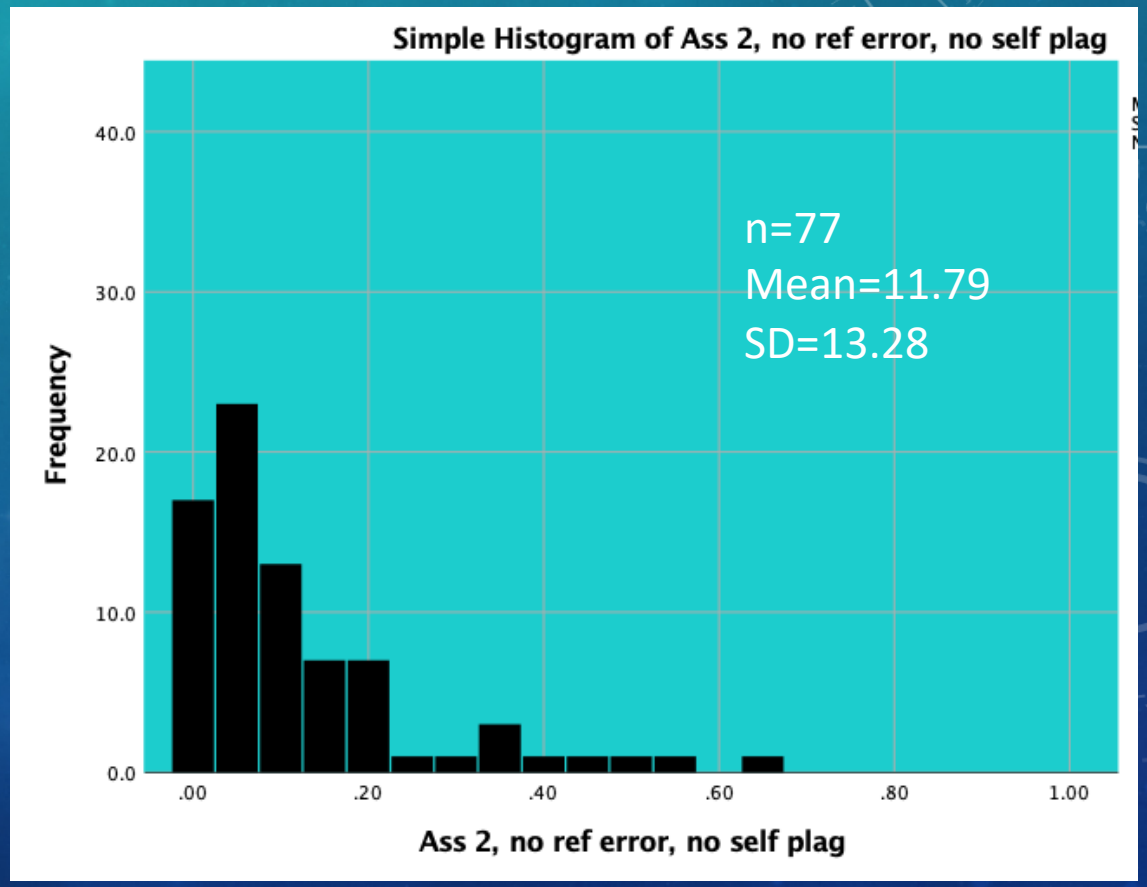




t=1.699, df=105, p<.05

RESULTS





t= 2.66 , df=76, p=.005

DISCUSSION

- Text matching software has the potential for helping students and faculty better understand and avoid plagiarism; however, there are pros and cons to its use.

IMPLICATIONS

- Pros:
  - Students and faculty can better detect plagiarism
  - Authentic tool for students and faculty to learn what plagiarism is, educate themselves, and avoid plagiarism
  - Students and faculty can better understand textual similarity
- Cons:
  - Time (run reports, explain and interpret reports, learn the software)
  - The software isn’t perfect (i.e. failing to recognize reference lists)
  - Assignments aren’t all equal and may flag students’ previously published work
  - There is no easy “threshold” of what is an acceptable similarity score – results must be investigated

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FOR MORE INFORMATION

- Sarah Elaine Eaton, Principal Investigator
- Werklund School of Education
- University of Calgary
- seaton@ucalgary.ca