

1 The Problem Statement

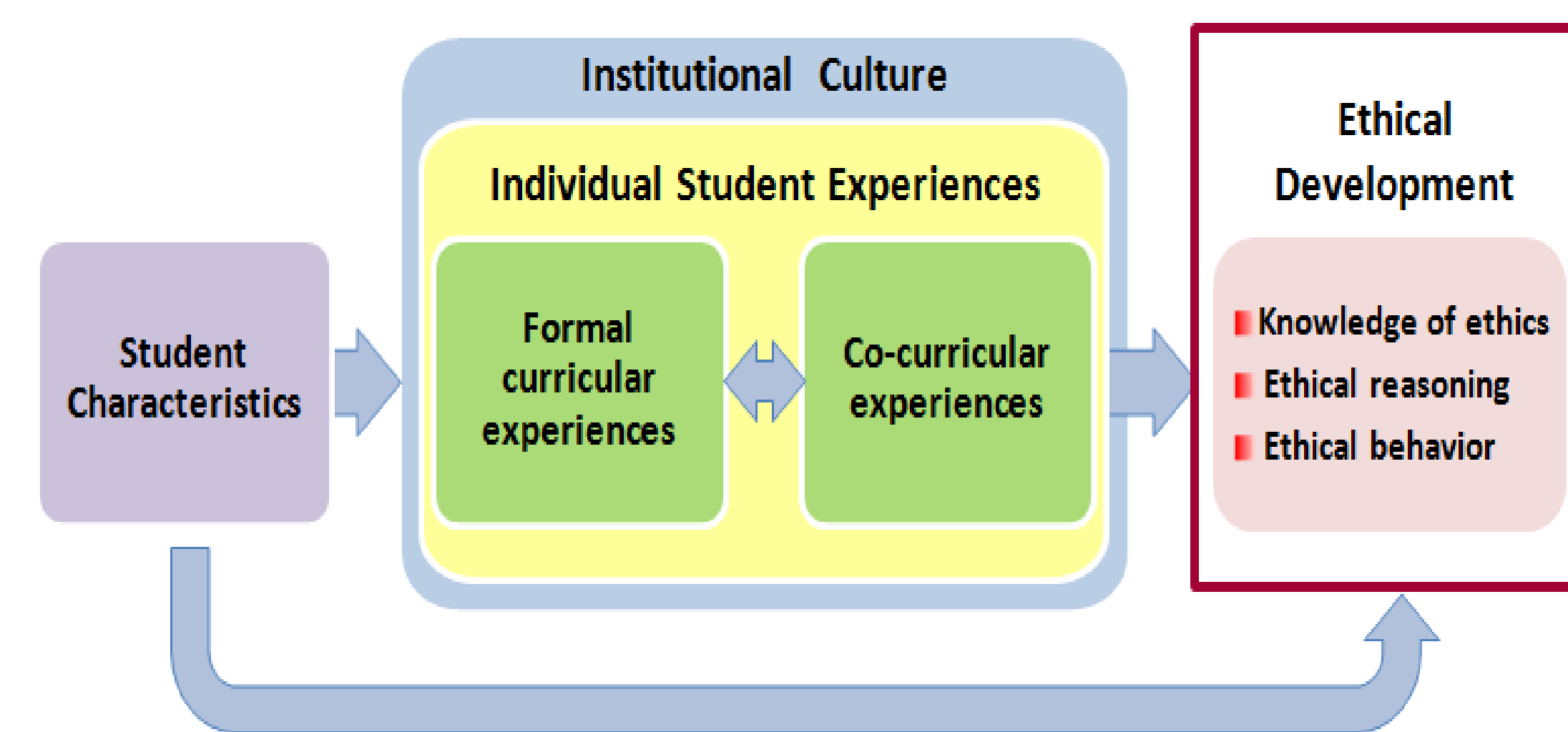
Problem

- Current instruction focuses on knowledge rather than ability to resolve ethical dilemmas or behave ethically.
- No conclusive evidence about what curricular activities best influence ethical development.

Purpose

- Analyze current state of curricular and co-curricular experiences and student ethical development.

2 Conceptual Framework



3 Method

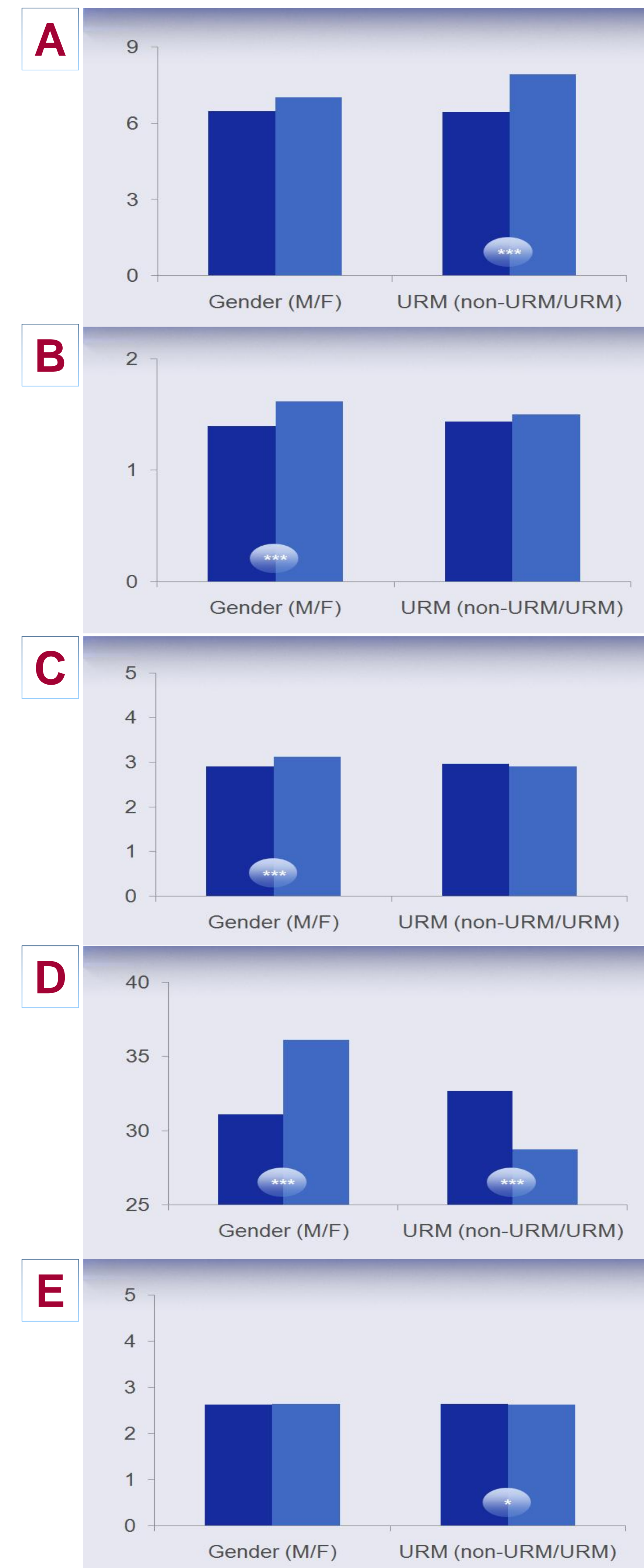
Data

- Student Engineering Ethical Development (SEED) survey
- 3,914 respondents at all class levels at 18 institutions

Variables

- Student characteristics (e.g., gender, underrepresented racial/ethnic minority (URM) status)
- Number of curricular experiences: Up to 63 possible choices (e.g., instruction about ethics through presentation by a professor in an introductory engineering course)
- Involvement in co-curricular experiences: Highest level of involvement in 15 types of experience (2=freq, 0=never)
- Knowledge of ethics: Number of correct answers to five questions
- Ethical reasoning ability: Score on DIT instrument
- Frequency of cheating (5=every time, 0=never)

4 Results



- A. Number of curricular experiences
- B. Involvement in co-curricular experiences
- C. Knowledge of ethics
- D. Ethical reasoning ability
- E. Frequency of cheating

Note: * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

5 Summary of Key Findings

- **A:** URM students show a higher likelihood of involvement in curricular experiences.
- **B:** Females show a greater frequency of involvement in co-curricular experiences.
- **C:** Females show a greater knowledge of ethics.
 - Little variation by URM status in knowledge of ethics is shown.
- **D:** Females and non-URM students show higher levels of ethical reasoning ability.
- **E:** Little evidence regarding gender differences in cheating behavior is shown.

6 Conclusions

- Important differences by gender and URM status are illuminated.
- Largely descriptive in nature,
 - Future research is warranted:
 - To strengthen the causal inference between curricular and co-curricular experiences and ethical development and
 - To gain better insight into more effective curricular and co-curricular approaches that will improve ethical development of all students.
- Will serve the important goal of improving ethics instruction at the engineering undergraduate level and
 - Will, ultimately, lead to engineers who have the tools and understanding to act ethically in their careers.

* Contact Information

- Eunjong Ra (ejra@umich.edu)