

STEREOTYPIC ROLES AND MICROAGGRESSIONS IN ENGINEERING STUDENT GROUP PROJECT TEAMS

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Gender stereotypic role adoption in student group project teams

- Student group projects are common in engineering and other fields.
- Small groups develop a project and present it using Powerpoint at the end of the term.
- Students value presentation experience, but they may be vulnerable to stereotyping processes.

Analysis of Videotaped Footage

- Engineering 100: Introduction to Engineering
 - ▣ (FALL 2008 - WINTER 2011)
- Group project presentations are routinely videotaped for archives



Stereotypic roles indicated by type of slides presented

Technical Slide Example

Prototype Functionality

- Faraday's Law of Induction: "If a flux passes through a turn of a coil of wire, a voltage will be induced in the turn of wire that is directly proportional to the rate of change in the flux with respect to time"
- Generated energy is stored in a rechargeable battery
- Mini USB port in belt with separate cord connect to phone port

$$e_{ind} = -\frac{d\phi}{dt}$$

Where,

e_{ind} = voltage induced in the turn of the coil

ϕ = flux passing through the turn

NonTechnical Slide Example

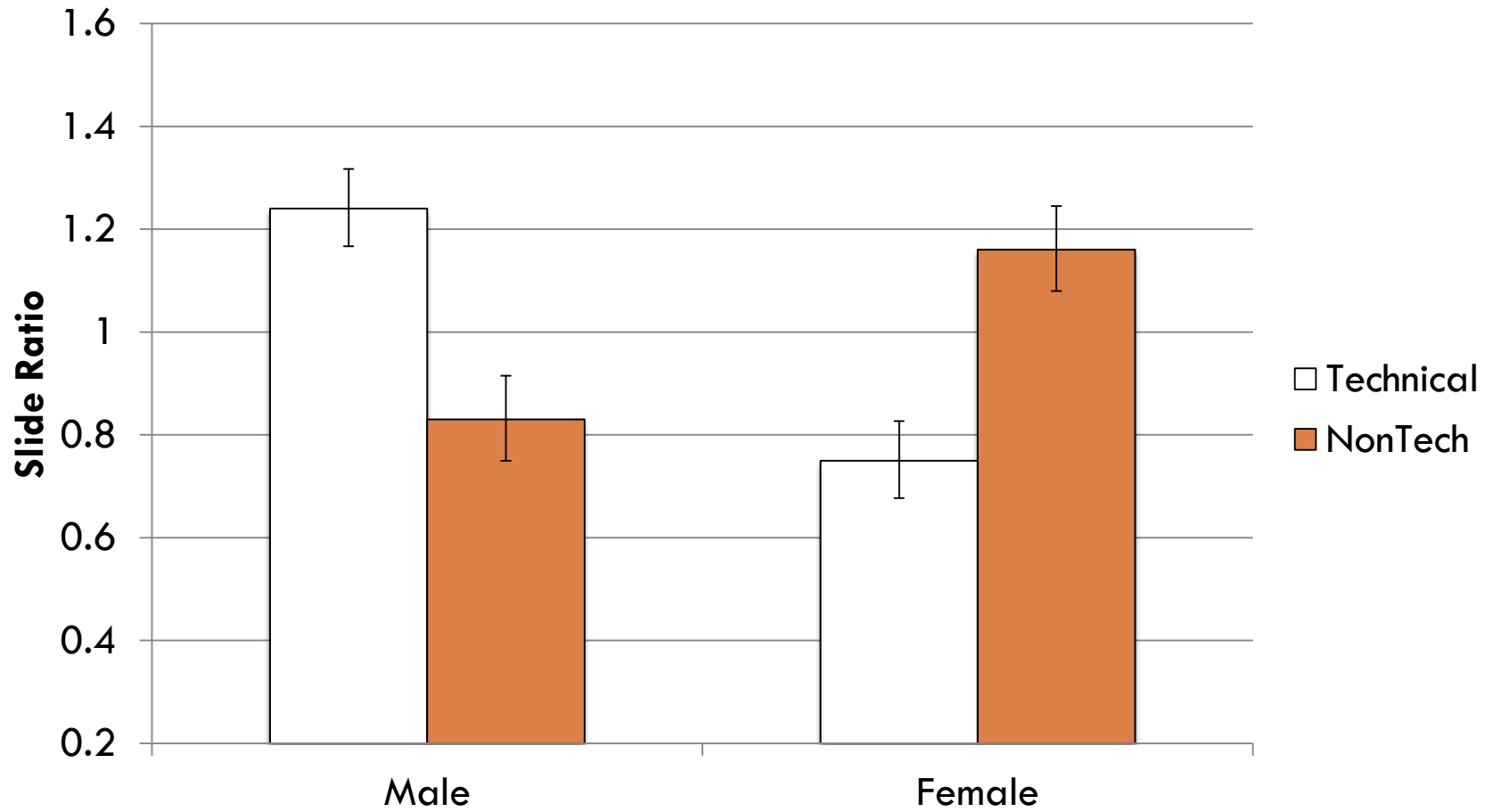
Final Product

Recommendations

- Faux Leather exterior
- Multiple styles and sizes
 - Men, Women, Children
- Streamline Belt
- Increase Energy Output via more Inductors
- Waterproofing

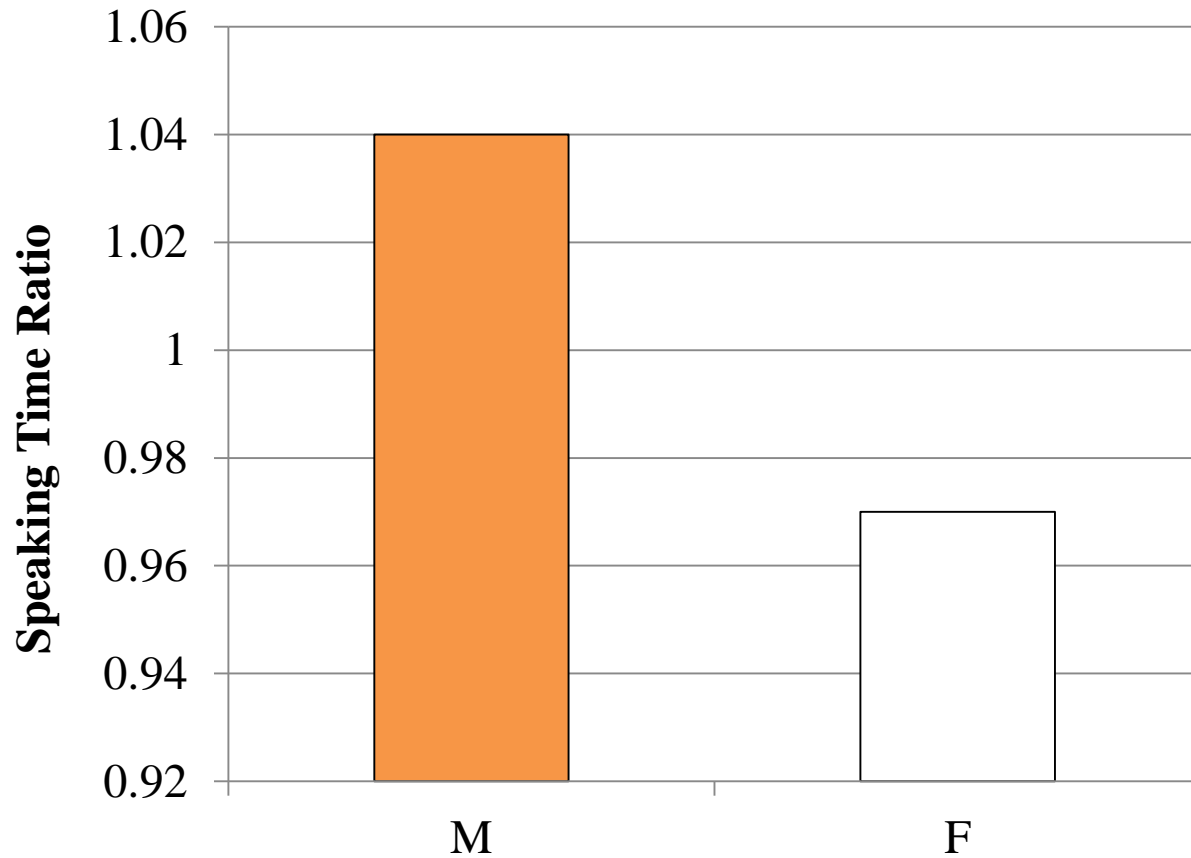
Technical vs. Non-Technical Slide Ratio by Student Gender

2-way interaction, $F(1, 719) = 20.27, p < .001$



Speaking Time Ratio by Student Gender

Main effect of gender, $F(1, 720) = 5.88, p = .02$



Microaggressions coding and survey

Theme (D. W. Sue, 2010)	Example in engineering team context	Implicit Message
Assumption of Inferiority	Discrediting/devaluing of woman's ideas	Women's ideas are not as good as men's
Traditional Gender-Role Stereotyping	Surprise that women know technical information	It is unusual for women to be technically competent
Sexist Language	Exclusive use of male pronouns to describe engineers	Women are not engineers
Sexual Objectification	Comment on attractiveness of female teammates	Women's appearance is for men's enjoyment or pleasure
Second-Class Citizen	Assignment of less important (secretarial) tasks	Women occupy only supportive roles on teams
Benevolent sexism (passive/aggressive paternalism)	Adoption of sexist social convention (e.g. "ladies first")	Passively expressing sexism under the guise of social convention

Summary: Stereotyping in engineering student group project teams

- Men take on more active roles than women in ENGR student group project presentations.
- Gender stereotypes play a role.
- Implications for learning, as students gain mastery through active participation.
- Identifying strategies to reduce these patterns can improve outcomes for men as well as women.

