Session # 38
The Impact of Gender and Learning

Dr. Narissra Punyanunt-Carter
Texas Tech University
WHY WE'LL NEVER UNDERSTAND EACH OTHER...

WHAT SHE HEARD...

LIFE AS WE KNOW IT WILL CEASE TO EXIST UNLESS YOU CAN ALTER THE SPACE-TIME CONTINUUM!

WHAT HE SAID...

HONEY... ARE YOU ALMOST READY YET?
Way we'll never understand each other...

What he heard...

Honey... why don't you put your head in a vise and I'll turn the handle until your skull explodes.

What she said...

Honey... why don't we turn off the TV and just talk.
Introductions

• In your rows, find three things that you have with you (in your purse, wallet, back pack, on your body) that represents who you are. Then, please quickly introduce yourself and how these 3 things represent you.

• Start with the person closest to the walls!
What did you notice?

• Were their differences in the males and females?
• Were their differences in gender? Or religion? Or culture?
• Any themes?
Key points from that activity

• Students want a sense of belonging!
• Students want to feel a connection with others!
IDEAL

• 1. List 7 characteristics that the ideal person would have.
• 2. List 7 characteristics that the ideal woman should have.
• List 7 characteristics that the ideal man should have.
• Based on those characteristics what would be the ideal job for those individuals.
In groups….

• Discuss the overlap between perceptions of the ideal person and male/female stereotypes.
• What would the best jobs for people with these characteristics?
Debrief- IDEAL

• Why?
• What did your group come up with?
• Where do these stereotypes come from?
ACTIVITY

• Dr. Karla Jensen
CARDS

• I will give you a card – DO NOT look at it.
• Hold it above your head and then socialize with others
• If you see a 10, J, K, Q – These are the cool kids! You want to be seen with them! You want to impress them.
• If you see a 2, 3, 4, 5 - These are the uncool kids! You do not want to be seen with them! You don’t really want to talk to them!
• If you see a 6, 7, 8, 9 – These are the average kids. They are neither bad/good.
Debrief

• Did you have a feeling of your card?
• How did you feel afterwards?
• What is your impression of this activity?
• How does this relate to learning in the classroom?
Think- Pair - Share

• Write down, then pair up, and share with a partner:
• 1. How are boys and girls different?
• 2. How do boys and girls learn?
• 3. How do parents affect their child’s behavior?
20/20 Video

• Boys and girls
Thoughts?

• What did you learn from the video?
• What surprised you about the video?
• What can you take away from that video?
• Information from Laura McCullough – University of Wisconsin-Stout
Research

- Michael Gurian’s book Boys & Girls Learn Differently
- Females brains mature faster, more social, and communicate verbally
- Males are more spatially oriented and they “manage social energy through dominance and pecking order”
Susan Small

- Girls don’t like getting into trouble and they communicate with detail.
- Boys accept getting into trouble and communicate quite well with one or two words.
Gender as Context

- Context can have a powerful effect on learning.
- Gender as context goes beyond one’s biological sex, to include the cultural and social issues surrounding it.
Biological/Psychological Differences

• Meta-analyses suggest no large or significant differences in cognitive ability between males and female; though there is an increasing amount of research on cognitive processes. (AAUW/ACA, 1885; Fausto-Sterling, 1985; Friedman, 1995; Blum, 1998; Kimura, 2000)

• Memory tasks (Herrmann, 1992) – Women recalled more shopping list than men and men recalled directions than women
What are gender differences in science?
Gender Differences in Science

• Interest in science – girls are under-represented. Factors: teachers, teaching methods, and scope of education
• Course-taking patterns – Males - quantitative
• Major course of study
• Achievement/Career choice – Males are influenced by performance history and females are influenced by value.
• Attitudes – Boys are more positive toward science
How do gender learning styles differ?
Learning Styles

• Learning styles probably differ by gender, but research results vary widely (Belenky et. al., 1986; Philbin et. al., 1995; Sadler-Smith, 1999)
  - men are more abstract learners, women have more anxiety about study success; men are more intuitive, women are more analytical; women more organized, men more undirected, etc.
• Different instruments produce small but consistent gender differences (Severiens & ten Dam, 1994)
• Different Myers-Briggs scores: women more feeling (F), men more thinking (T) (Nuby & Oxford, 1996)
How do genders differ in the classroom?
Classroom Behaviors

• Student-student interactions
  – Males dominate group work; males dominate discussions; harassment and teasing (AAUW, 1992, 1999; Guzzetti, 1998; Kahle, 1990)

• Teacher-student interactions
  – Males tend to monopolize teacher attention (both positive and negative); males graded on content/girls graded on appearance or behavior; differential expectations of boys and girls (Sadker & Sadker, 1994; Jones & Wheatley, 1990; Brophy, 1985)
How are gender attitudes differ in the sciences?
Attitudes toward Science

• 1983 meta-analysis (Steinkamp & Maehr) suggests no gender difference, a 1995 meta-analysis (Weinburgh) found more positive attitudes among boys; research still inconclusive

• Weinburgh’s analysis found positive correlation between attitude and achievement; higher correlation for girls
“Self” Variables

• Women tend to attribute success to luck or effort, men attribute success to ability (Fennema, 1990)
• Feelings about science due to sex-role stereotyping (Kahle & Rennie, 1993)
• Decrease in confidence and academic risk taking as girls get older (Orenstein, 1995)
• The girl who gets straight A’s but thinks she’s stupid and feels discouraged, the boy who barely gets B’s but thinks he’s brilliant.
• The most basic difference is TEACHING STYLE:
• Girls – encourage and build their confidence
• Boys – to challenge them & let them create
Raising Cain – Teaching Boys

- Let them play
- Activities that involve moving
- Let boys appeal to their interests
- Don’t reprimand communication
- Allow them to express
- Set out limits
- Listen not lecture
- Compliment
Teaching Girls

• Relationship Oriented
• Reduce concerns about self-image
• Self-confidence through leadership
• Provide choices
• Avoid helping
• Provide role models
• Praise achievement
• Girls generalize the meaning of their failures because they interpret them as indicating that they have disappointed adults, and they are little worth.

• Boys see failures as relevant to only the specific subject area in which they have failed.
Do boys and girls solve problems differently?
Gender and Problem-Solving

• Higher problem-solving achievement among males than among females (Sweeny, 1953; Adigwe, 1992; Casey, 2001)
• Reasoning ability and cognitive levels (Suits & Lagowski, 1994)
• How you ask the question may affect student responses (Moreno & Mayer, 1999)
How can we teach boys and girls differently?
Gender and Pedagogy

• Factors that motivate females and males to study are different. Context could motivate females more, but will bore the males.

• Teacher’s gender has a impact on students’ learning process. Boys learn more from male and girls learn more from female.
Gender and Learning

• All of these are factors which could affect learning. But...research in these areas is often inconclusive
• Overall picture suggests that men and women may learn differently.
• The context of being male or female interacts with the classroom and society to affect learning
• There are big differences in the best way to teach females and males.
Key Take Aways

• Take a few minutes to write down the 3 most important things you learned from this session and share with a partner.
Questions
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Texas Tech University
References

References

General Gender Differences
In Michael Gurian’s book Boys and Girls Learn Differently! He noticed female brains mature faster than male brains, girls communicate verbally better than boys, boys are more spatial, girls tend to be social, and boys tend to “manage social energy through dominance or pecking order.”

According to Susan Small, girls don’t like getting into trouble and boys seem to accept it more; girls stand back and figure out the rules and boys are more aggressive about exploring their world; girls communicate with detail and boys communicate quite well with one or two words.

Gender as Context
The attitudes and actions of family and teachers have a significant influence on boys and girls. These influences have clear ramifications for the cognitive development of girls and boys. Such as families participate by defining the different roles that boys and girls should play.

Biological/Psychological Differences
• Meta-analyses suggest no large or significant differences in cognitive ability between males and female; though there is an increasing amount of research on cognitive processes. (AAUW/ACA, 1885; Fausto-Sterling, 1985; Friedman, 1995; Blum, 1998; Kimura, 2000)

• Memory tasks (Herrmann, 1992)
Memory performance varied in ways consistent with gender stereotypes. For example: Women recalled more of the shopping list than men whereas men recalled more of the directions than women.

Gender Differences in Science
• Interest in science
Women are under-represented in mathematics and science and in technical courses. Factors such as the role of teachers, teaching methods and the scope of education are influential to this result. Parents’ perceptions and expectations regarding their child’s abilities in mathematics and science influence the child’s self-perceptions and expectations.

• Course-taking patterns
Men perform better than women on quantitative tasks, whereas women perform better than men on verbal tasks.

• Major course of study
Women are under-represented in math, physics and engineering courses in the U.S.

• Achievement/ Career choice
Males’ achievement choice will be influenced primarily by their performance history. Females’ achievement decisions are influenced by both their performance history and by the value they attach to the subject.

- **Attitudes**
  Boys show a more positive attitude toward science than girls in all types of science.

**Learning Styles**

- Boys can be more global, “they see that big-picture thing, but they can miss the details.” Girls, on the contrary, often pay attention to the details. And boys don’t particularly like to elaborate, a characteristic that might work to their disadvantage when writing an essay.
- **Learning styles probably differ by gender, but research results vary widely** *(Belenky et. al., 1986; Philbin et. al., 1995; Sadler-Smith, 1999)*
  Men are more abstract learners, women have more anxiety about study success; men are more intuitive, women are more analytical; women more organized, men more undirected, etc.

- **Different instruments produce small but consistent gender differences**
  Two instruments was used in the research: Kolb’s Learning Style Inventory and Entwistle’s Approaches to Studying Inventory. On Kolb’s instrument, the results showed that men were more likely than women to prefer the abstract conceptualization mode of learning. On Entwistle’s ASI a difference was found on the affective components of approaches to studying.

- **Different Myers-Briggs scores: women more feeling (F), men more thinking (T)**
  Women indicated a much stronger preference for feeling.

**Classroom Behaviors**

- **Student-student interactions**
  Males dominate group work; males dominate discussions; harassment and teasing *(AAUW, 1992, 1999; Guzzetti, 1998; Kahle, 1990)*

- **Teacher-student interactions**
  Males tend to monopolize teacher attention (both positive and negative); males graded on content/girls graded on appearance or behavior; differential expectations of boys and girls *(Sadker & Sadker, 1994; Jones & Wheatley, 1990; Brophy, 1985)*
  - **Differential expectations of boys and girls**
    Female teachers warn male students significantly more than female students, while male teachers warn both genders with similar frequency. In physical science classes, male students receive significantly more behavioral warnings than female students. In chemistry classes, male
and female students receive approximately the same number of behavioral warnings.

Attitudes toward Science

- 1983 meta-analysis (Steinkamp & Maehr) suggests no gender difference, a 1995 meta-analysis (Weinburgh) found more positive attitudes among boys; research still inconclusive

- Weinburgh’s analysis found positive correlation between attitude and achievement; higher correlation for girls
  Boys show a more positive attitude toward science than girls in all types of science. The correlation between attitude and achievement for boys and girls as a function of science type indicates that for biology and physics the correlation is positive for both, but stronger for girls than for boys.

“Self” Variables

- Women tend to attribute success to luck or effort, men attribute success to ability (Fennema, 1990)
  Educational psychologists have consistently found that girls tend to have higher standards in the classroom, and evaluate their own performance more critically. Girls also outperform boys in school (as measured by students’ grades), in all subjects and in all age groups. Conversely, boys tend to have unrealistically high estimates of their own academic abilities and accomplishments.
  Example: The girl who gets straight A's but thinks she's stupid and feels discouraged; the boy who's barely getting B's but thinks he's brilliant.
  Solution: The most basic difference in teaching style for girls vs. boys is to encourage the girls, build them up, while you give the boys a reality check: make them realize they're not as brilliant as they think they are, and challenge them to do better.
  Eva Pomerantz, Ellen Alterman, and Jill Saxon (2002, p. 402): "Girls generalize the meaning of their failures because they interpret them as indicating that they have disappointed adults, and thus they are of little worth. Boys, in contrast, appear to see their failures as relevant only to the specific subject area in which they have failed; this may be due to their relative lack of concern with pleasing adults. In addition, because girls view evaluative feedback as diagnostic of their abilities, failure may lead them to incorporate this information into their more general view of themselves. Boys, in contrast, may be relatively protected from such generalization because they see such feedback as limited in its diagnosticy."

- Feelings about science due to sex-role stereotyping (Kahle & Rennie, 1993)
  Teachers will influence students’ perceptions about and confidence in doing science. Equitable teaching strategies are encouraged in classroom. But boys and girls are treated differently, and resulted in the discrepancies between boys’ and girls attitudes, confidence, and achievement levels in science.

- Decrease in confidence and academic risk taking as girls get older (Orenstein, 1995)
Gender and Problem-Solving

- **Higher problem-solving achievement among males than among females**
  (Sweeny, 1953; Adigwe, 1992; Casey, 2001)

- **Reasoning ability and cognitive levels (Suits & Lagowski, 1994)**
  For reasoning ability, males outscored females. Males tended to score higher on lower cognitive items, whereas females tended to score higher on higher cognitive items with no gender differences on middle cognitive items. This reversal was due to significant gender-reasoning level interactions for both middle- and higher-cognitive problem-solving measures.

- **How you ask the question may affect student responses (Moreno & Mayer, 1999)**
  After college students learned about the formation of lightning, and were then given open-ended problem-solving questions. When asked, "What could you do to decrease the intensity of lightning?" Females were approximately eight times more likely than males to refuse to answer on the grounds that nature cannot be altered.

Gender and Pedagogy

- **Factors that motivate females and males to study are different. Context could motivate females more, but will bore the males.**
  The fundamental differences in the factors that motivate girls vs. factors motivate boys. Researchers have consistently found that "girls are more concerned than boys are with pleasing adults, such as parents and teachers" (Pomerantz, Altermatt, & Saxon, 2002, p. 397). Most boys, on the other hand, will be less motivated to study unless the material itself interests them. Context enhances learning for most girls, but often just bores the boys.
  **Example:** Best practices for teaching math differ significantly for girls and boys - particularly in arithmetic, algebra, and number theory. With boys, you can stimulate their interest by focusing on the properties of numbers per se. With girls, you want to tie what you're teaching into the real world. Keep it real and keep it relevant.
  There are no differences in what girls and boys can learn. But there are big differences in the best way to teach them.
  Teaching method may affect both the choice and the success of women studying mathematics and science.

- **Teacher’s gender has a impact on students’ learning process. Boys learn more from male and girls learn more from female.**
  Gender might have greater influence on learning process than people noticed. Thomas Dee (2006) found that having a teacher of the opposite sex hurts a student's academic progress. For example, in his research, when a man led the class, boys did better and girls did worse.