Twenty Years Later: Addressing Gender Inequalities in Education Achievement & Attainment

Judith L. Meece

&

Charlotte Agger

University of North Carolina-CH

APA References

Meece, J. L., Parsons, J. E., Kaczala, C., Goff, S., & Futterman, R. (1982). Sex differences in math achievement: Toward a model of academic choice. *Psychological Bulletin*, *91*, 324-348.

Eccles-Parsons, J., Adler, T. F., & Meece, J. L. (1984). Sex differences in achievement: A test of alternative theories. *Journal of Personality and Social Psychology*, *46*, 26-43.

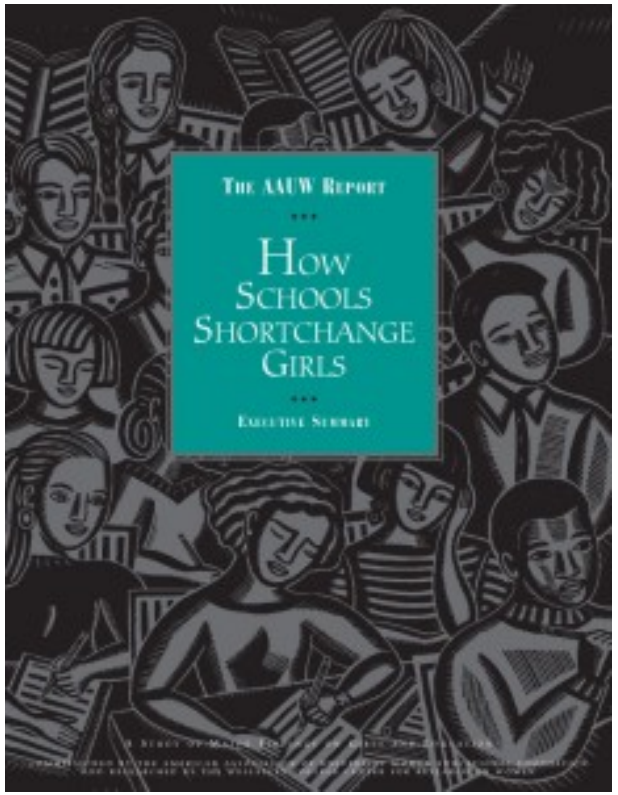
Meece, J. L., Wigfield, A., & Eccles, J. (1990). Predictors of math anxiety and its consequences for young adolescents' course enrollment intentions and performance in mathematics. *Journal of Educational Psychology, 82,* 1-11.

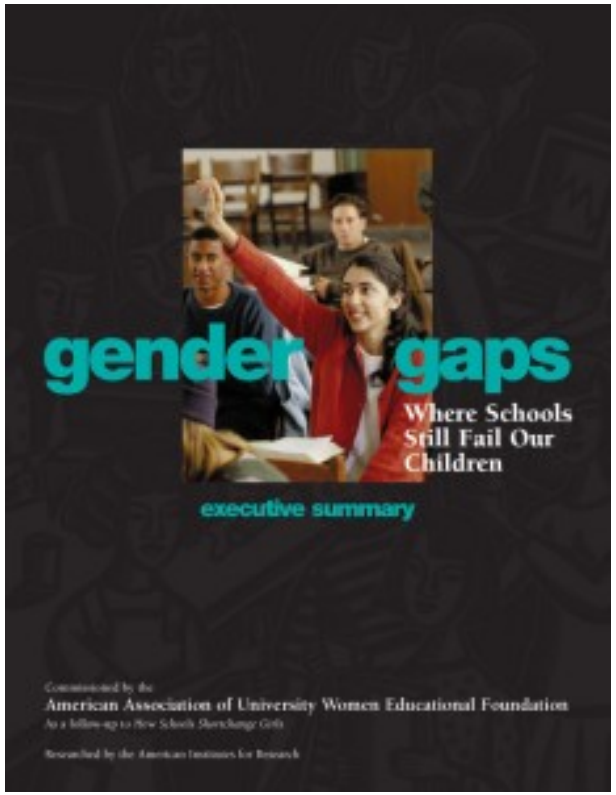
Meece, J. L., & Eccles, J.S. (1993). *Gender and educational achievement* [Special Issue]. *Educational Psychologist*. Mahwah, NJ: Lawrence Erlbaum Associates.

Meece, J. L., & Kurtz-Costes, B. (2001). Introduction: The schooling of ethnic minority children and youth. *Educational Psychologist, 36,* 1-7.

Meece, J.L., Glienke, B., & Burg, S. (2006). Gender and motivation. *Journal of School Psychology,44,* 331-351.

Meece, J. L., & Askew, K.J. (2012). Gender, schooling, and academic achievement. In K. Harris, S. Graham, & T. Urdan (Editors-in-Chief.), *Educational Psychology Handbook* (Vol. 2, pp. 139-162). Washington, DC: American Psychological Association


The AAUW Report
How Schools Shortchange Girls
Executive Summary


gender gaps
Where Schools Still Fail Our Children
executive summary
American Association of University Women Educational Foundation

Recent Headlines

Boys being Left Behind as University Gender Gap Widens

Telegraph, August 3, 2014

Women's College Enrollment Gains Leave Men Behind

Pew Research Center, March 6, 2014

Gender Differences in Educational Attainment are Complex

Girls more likely than boys to graduate from high school

Women more likely than men to attend and graduate college

Patterns depend on socioeconomic status, race, & ethnicity

Men tend to enroll in math-intensive STEM fields in greater numbers than women.

Gendered Patterns of Achievement are Complex

Age of participant

Subject matter assessed

Type of assessment used

Racial & ethnic group studied

Socioeconomic status of student (when reported)

Ability level of student

Selectivity of the student group (college-bound)

Meece & Askew (2012)

National Data in Context

Sixty-six percent of 13-year-olds and 82 percent of 17-year-olds are able to search for specific informa-tion, interrelate ideas, and make generalizations based on what they read.

Almost one-half of 9-year-olds and the majority of 13- and 17-year-olds understand basic mathematical operations.

For international assessments, U.S. 15-year-olds rank 29th among 65 countries for mathematics. U.S students ranked at the international average for reading and science achievement.

What about Motivation?

"Students in the U.S are largely satisfied with their school and view teacher-student relations positively. Only 50% of U.S. students agreed that they are interested in learning mathematics…"

My Story

I attended school in what would be considered a rural area near Detroit.

I was a good student & look happy.

Parents had high educational expectations & mother was math major in college.

But I struggled in math & wanted to avoid it.

Consequences of Academic Choices

High school mathematics is a critical filter for science, postsecondary education, and employment opportunities (Sells, 1975).

Course-taking patterns in high school contribute to wage differentials in men's and women's earnings.

High school mathematics is an important gateway toward economic and social equity (Moses, 2001).

Psychological Explanations of Women's Achievement Motivation

Low Motive to Achieve Success

Feminine Sex-Role Orientation

Challenge Avoidance

Fear of Success

Learned Helplessness

Fear of Failure (test/math anxiety)

Academic Choice Model

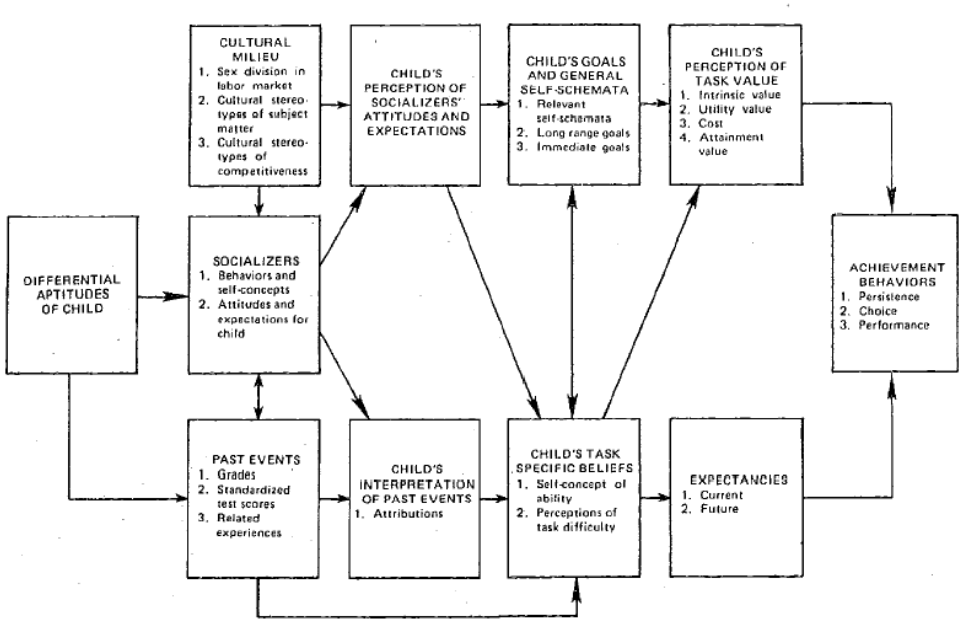


Figure 1. General model of academic choice. [Adapted from "Expectancies, Values, and Academic Behaviors" by J. E. Parsons, T. F. Adler, R. Futterman, S. B. Goff, C. M. Kaczala, J. L. Meece, & C. Midgley. In J. T. Spence (Ed.), *Perspectives on Achievement and Achievement Motivation* (in press). Copyright forthcoming by W. H. Freeman. Reprinted by permission.]

Early Tests of the AC Model

Gender differences favoring boys:

- Expectations for success in mathematics
- Valuing mathematics
- Attributions for success in mathematics
- Self-reports of mathematics anxiety

Sources: Eccles et al., 1983; Eccles-Parsons, Adler, & Meece, 1984; Wigfield & Meece, 1988; Meece, Wigfield, & Eccles, 1990

AC: Some Important Discoveries Early On

Subject-matter specific competency beliefs were important predictors of academic performance, even with prior ability controlled (expected).

Value beliefs, though related to competency beliefs, show stronger relation to student's choice to participate or to engage (unexpected).

Meece, Wigfield, & Eccles (1990)

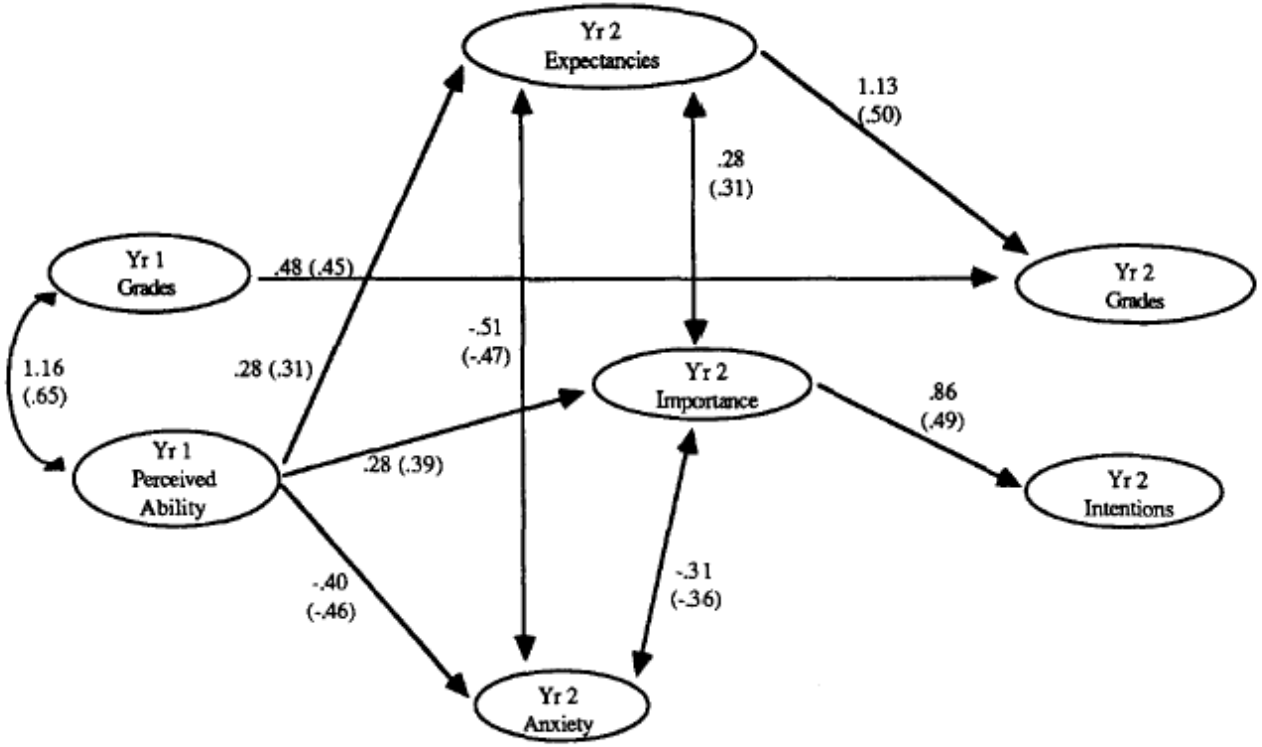


Figure 2. Predictors of mathematics grades and intentions to keep taking mathematics in the 7th–9th grade group (Yr = year).

AC: Discoveries with Longitudinal Designs

Children form gender differentiated competency and value beliefs as early as first grade, and patterns follow gender norms and stereotypes. These gender differences are early predictors of activity choices and performance (Eccles, Wigfield, Harold, & Blumenfeld, 1993).

Children experience declines in their competency and value beliefs over course of schooling. Rates of change differ gender, achievement domain, and type of belief (Fredricks & Eccles, 2002; Jacobs, Lanza, Osgood, Eccles, & Wigfield 2002).

Transitions to new school settings matter (Eccles & Midgley, 1989; Eccles et al., 1993; Wigfield et al., 1991).

Are Gender Differences in Competency and Value Beliefs still Evident?

Gender difference in competence beliefs related to mathematics have been found in samples of Australian, Canadian, U.S., and German students. Gender differences, were small in magnitude, but favored boys. Patterns for math-related values were less consistent across countries examined (Nagy et al., 2006; Watt et al., 2012).

An examination of 2003 TIMMS and PISA data, representing over 400,000 students (14-16 years) from 69 countries revealed small effect sizes for mathematics achievement, but boys scored “one third of a standard deviation higher on self-efficacy and self-concept of ability” (Else-Quest, Hyde, & Linn, 2010; p. 122).

Ethnic/Racial Variations within U.S.

- Graham, Taylor, and Hudley (1998) revealed gender differences favoring girls in the value attached to academic achievement.
- In study of 466 low-income African American students, male youth (ages 9-16) report lower expectations for attending college than do girls (Wood, Kaplan, & McLoyd, 2007).
- Wood (2007) reported no significant gender differences in expectancy and value beliefs.

Findings depend on socioeconomic status of student, diversity of high school, perceptions of discrimination, racial socialization, centrality of ethnic identity, etc.

Rural High School Aspirations Study

- Total Sample included 8754 rural high school students (Grades 9 to 12)
- Youth recruited from 73 randomly selected rural schools in 34 states
- Collected survey data from students, teachers, school administrators, and parents
- Focus of study was transition to postsecondary careers and education

Gender Differences in Motivational Beliefs?

- Educational aspirations (G > B)
- Teacher reported achievement (G > B)
- Teacher reported expectations (G > B)
- Academic self-concept (B > G)
- School valuing (G > B)

Meece, J.L., Askew, J.S., Agger, C., Hutchins, B.C., & Byun, S.Y. (2014). Familial and economic influences on gender-related educational and occupational aspirations of rural adolescents. *Journal of Educational and Developmental Psychology, 4*(1), 238-257.

Twenty years later….

Does Gender Matter?

Twenty Years Later….

- Gender inequities remain significant in literacy & science (when reported).
- Gender differences in mathematics assessments have diminished, but remain significant within select samples (college-bound, AP test-takers, high ability samples).
- Women have made significant gains in educational attainment, but gender segregation remains in fields of study & career choices.
- Achievement & educational inequities vary by race, ethnicity, socioeconomic status, and geographical location.
- Gender differences in motivation beliefs associated with academic performance, engagement, and participation emerge early in school and remain significant through college years.

Directions for Future Research on Gender and Achievement

Charlotte Agger

School of Education

UNC-CH

My Story

- Grew up in DC area, oldest of 5
- 5th year Educational Psychology doctoral student at UNC-Chapel Hill
- Interested in gender, achievement motivation, rural and minority youth, postsecondary success

The Future…

Future of Research on Gender and Motivation

1. Focus on social context

2. Expanding theoretical frameworks

3. Broadening of methodologies

1. Focus on Social Context

- Dr. Eccles' 2014 AERA Motivation SIG Keynote
- Need to look at motivation beyond single setting
- Think about individual characteristics AND how contexts present risks and opportunities

- Areas of focus
  - Familial socialization patterns
  - Classroom and peer influences

2. Expanding of Frameworks

- Theoretical frameworks should incorporate social, economic, demographic, structural changes

- Several areas should be addressed in expanding of frameworks:
  - Cultural elements, race and ethnicity, and social identities

3. Broadening of Methodologies

- Use person-centered approaches in new ways
- Incorporate mixed methods
- Use multiple sources of information (e.g., peer networks data, teacher and parent reports, etc.)
- Look to related fields for useful statistical tools

Our charge

- Refocus on context
- Expand our theoretical frameworks
- Develop our methods for studying gender and motivation

Thank you Division 15!

Judith Meece

meece@email.unc.edu

Charlotte Agger

agger@live.unc.edu