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# Gender Differences in Verbal Ability: A Meta-Analysis

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A weighted mean effect size is a measure of how strong the overall effect (the effect of all the studies being meta-analyzed) is. Usually, the weighted mean effect is measured in Cohen's *d*. A Cohen's *d* of +0.11 is rather small, as the authors note.

Many regard gender differences in verbal ability to be one of the well-established findings in psychology. To reassess this belief, we located 165 studies that reported data on gender differences in verbal ability. The weighted mean effect size ($d$) was +0.11, indicating a slight female superiority in performance. The difference is so small that we argue that gender differences in verbal ability no longer exist. Analyses of effect sizes for different measures of verbal ability showed almost all to be small in magnitude: for vocabulary, $d = 0.02$; for analogies, $d = -0.16$ (slight male superiority in performance); for reading comprehension, $d = 0.03$; for speech production, $d = 0.33$ (the largest effect size); for essay writing, $d = 0.09$; for anagrams, $d = 0.22$; and for tests of general verbal ability, $d = 0.20$. For the 1985 administration of the Scholastic Aptitude Test–Verbal, $d = -0.11$, indicating superior male performance. Analysis of tests requiring different cognitive processes involved in verbal ability yielded no evidence of substantial gender differences in any aspect of processing. Similarly, an analysis by age indicated no striking changes in the magnitude of gender differences at different ages, countering Maccoby and Jacklin's (1974) conclusion that gender differences in verbal ability emerge around age 11. For studies published in 1973 or earlier, $d = 0.23$ and for studies published after 1973, $d = 0.10$, indicating a slight decline in the magnitude of the gender difference in recent years. The implications of these findings are discussed, including their implications for theories of sex differences in brain lateralization and their relation to changing gender roles.

Although not mentioned in the abstract, this meta-analysis analyzed the results of **165 different studies**, in which nearly **1.5 million (!) participants** had been tested.

The existence of gender differences in verbal ability has been one of the tried and true "facts" of psychology for decades. Anastasi (1958), in her classic text on differential psychology, stated that females are superior to males in verbal and linguistic functions from infancy through adulthood. Tyler (1965), in another classic text on differential psychology, reached similar conclusions. Maccoby (1966) concluded,

> Through the preschool years and in the early school years, girls exceed boys in most aspects of verbal performance. They say their first word sooner, articulate more clearly and at an earlier age, use longer sentences, and are more fluent. By the beginning of school, however, there are no longer any consistent differences in vocabulary. Girls learn to read sooner, and there are more boys than girls who require special training in remedial reading programs; but by approximately the age of ten, a number of studies show that boys have caught up in their reading skills. Throughout the school years, girls do better on tests of grammar, spelling, and word fluency. (p. 26)

In the major contemporary review of psychological gender differences, Maccoby and Jacklin (1974) located 85 studies reporting an analysis of gender differences in verbal ability. They concluded,

> It is probably true that girls' verbal abilities mature somewhat more rapidly in early life, although there are a number of recent studies in which no sex difference has been found. During the period from preschool to early adolescence, the sexes are very similar in their verbal abilities. At about age 11, the sexes begin to diverge, with female superiority increasing through high school and possibly beyond. Girls score higher on tasks involving both receptive and productive language, and on "high-level" verbal tasks (analogies, comprehension of difficult written material, creative writing) as well as upon the "lower-level" measures (fluency). The magnitude of the female advantage varies, being most commonly about one-quarter of a standard deviation. (p. 351)

Denno (1982), in another review, also concluded that females were superior in verbal ability, having a slight advantage beginning in the preschool years, with the difference becoming stronger and more reliable after age 10 or 11. And, in yet another recent review, Halpern (1986) concurred that females have better verbal abilities than males.

Thus, although there is some disagreement among the reviews on details (a point to be discussed below), there is a clear consensus that there are gender differences in verbal ability favoring females. Reflecting this consensus, most textbooks in introductory psychology and developmental psychology present this finding as one of the well-established "facts" of psychology (e.g., Atkinson, Atkinson, & Hilgard, 1983, p. 90; Gleitman, 1981, p. 516; Hetherington & Parke, 1986, p. 626; Mussen, Conger, Kagan, & Huston, 1984, p. 276).

Despite the consensus on the existence of gender differences in verbal ability, the reviews disagree on some important details regarding the nature of the differences. The disagreements fall into two categories: (a) which types of verbal ability show gender differences and which do not, and (b) the developmental timing of the appearance or disappearance of the differences. For example, Anastasi argued that gender differences are found for

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