

Following creation of the cross-product terms for ACH, SES, and sex, all three interaction terms were entered together on a separate block following entry of the main effects. Conservative data cleaning was performed. Cook's D values were converted to z-scores, and 86 cases (out of 16,608, or approximately 0.5%) had values more than 5 SD from the mean and thus were removed. Following removal, the analysis was performed on the cleaned data.

Addition of the simple variables significantly improved the model fit, as you can see in Table 9.6a ($\chi^2_{(3)} = 2,146.64, p < .0001$). Entry of the two-way interactions also significantly improved the model fit ($\chi^2_{(3)} = 25.17, p < .0001$). Entry of the three-way interaction did not improve model fit ($\chi^2_{(1)} < 1, p < .41$) and thus was disregarded.

As you can see from Table 9.6b, only one interaction was significant: the interaction of ACH and SES. To explore the nature of the interaction more fully, we graphed the regression line equation assigning a value of -2 for "low," 0 for "average," and +2 for "high." All values were converted from logits to conditional probabilities and graphed in Figure 9.7c. As you can see in this figure, increased achievement in eighth grade tends to increase the probability of graduation. However, there is less effect of achievement on graduation for students from families with high SES, whereas the effect of achievement is much stronger on students from families with lower SES. Thus, the effect of either achievement or SES must be considered in the context of the other variable.