Factorial ANOVA Example

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
TRAINING received eyewitness training or not	1.00	no training	10
	2.00	training	10
VIOLENCE violent film presented or not	1.00	no violence	10
	2.00	violence	10

Descriptive Statistics

Dependent Variable: MEMORY memory for assailant

TRAINING received	VIOLENCE violent	Mean	Std. Deviation	N
1.00 no training	1.00 no violence	4.0000	.70711	5
	2.00 violence	2.0000	1.22474	5
	Total	3.0000	1.41421	10
2.00 training	1.00 no violence	8.0000	1.22474	5
	2.00 violence	2.0000	1.22474	5
	Total	5.0000	3.36650	10
Total	1.00 no violence	6.0000	2.30940	10
	2.00 violence	2.0000	1.15470	10
	Total	4.0000	2.71448	20

Tests of Between-Subjects Effects

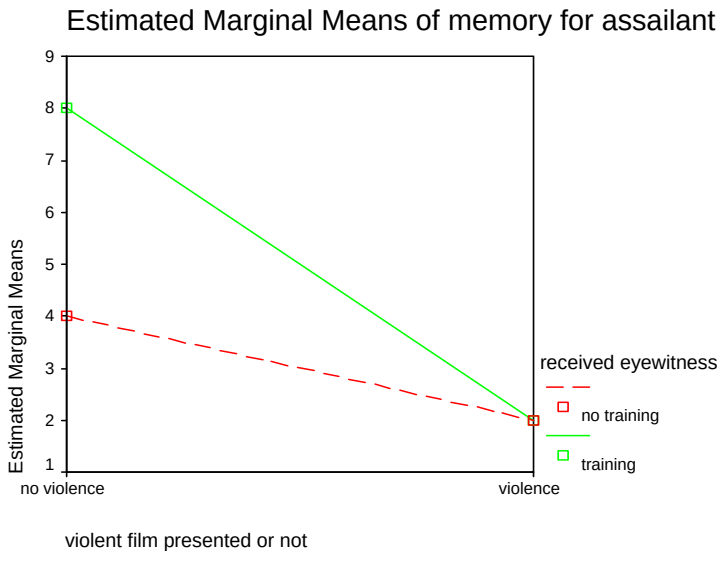
Dependent Variable: MEMORY memory for assailant

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[a]
Corrected Model	120.000[b]	3	40.000	32.000	.000	.857	96.000	1.000
Intercept	320.000	1	320.000	256.000	.000	.941	256.000	1.000
TRAINING	20.000	1	20.000	16.000	.001	.500	16.000	.963
VIOLENCE	80.000	1	80.000	64.000	.000	.800	64.000	1.000
TRAINING * VIOLENCE	20.000	1	20.000	16.000	.001	.500	16.000	.963
Error	20.000	16	1.250					
Total	460.000	20						
Corrected Total	140.000	19						

a. Computed using alpha = .05

b. R Squared = .857 (Adjusted R Squared = .830)

Profile Plots



A 2 X 2 (film X eyewitness training) factorial analysis of variance tested the effects of the violent film incident and the eyewitness training program on memory for the assailant. Results indicated a significant main effect for the violence factor, $F(1,16) = 64.00$, $p < .001$. As hypothesized, those who saw the violent segment in the film showed a memory deficit ($M = 2.00$) compared to those who had not ($M = 6.00$). There was also a significant main effect for the training program, $F(1,16) = 16.00$, $p < .01$. Officers in the training program had better memory overall ($M = 5.00$) than those who had no training ($M = 3.00$). The two main effects were qualified, however, by a significant interaction between the two factors, $F(1,16) = 16.00$, $p < .01$, indicating that the training program effects were not the same for two different film conditions. For those officers who did not witness the violent incident in the film, memory for the assailant was better for the officers who underwent training ($M = 8.00$) than it was for those who did not receive training ($M = 2.00$). The training appeared to have no effect, however, when the violent incident was included in the film (both Ms = 2.00).

A simple effects test examined the whether the violence manipulation had significant effects for those who did not receive any training, $F(1,16) = 8.00$, $p < .05$. Results showed that, among those who did not receive any training, those in the violence condition had significantly poorer memory than those in the no violence condition.

(Note that I'm not sure this was the most logical simple effects test, and more than one might have been desired in this example. It might also be wise to integrate the simple effects F-values into the description of the cell mean differences. In addition, APA recommends inclusion of eta-squared values for each effect, although I did not include them here).