Chapter 13 Problems

1. a.

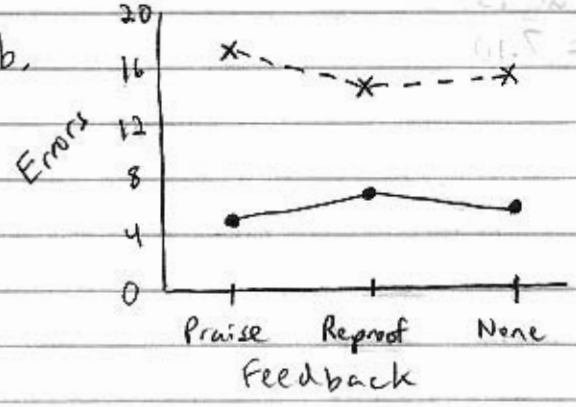
Source	SS	df	MS	F
A	0.19	$a-1=2$	$0.19/2=0.10$	$0.19/3.03=0.03$
B	961.93	$b-1=1$	$961.93/1=961.93$	$961.93/3.03=317.29$*
A x B	36.57	$df_A df_B=2$	$36.57/2=18.29$	$18.29/3.03=6.03$*
S/AB	109.14	$N-ab=36$	$109.14/36=3.03$	
Total	1107.83	$N-1=41$		

All SS are from SPSS output

*: $p<.05$

The significant main effect of age group (B) tells us that the mean number of errors committed by adults was significantly different from the mean number of errors committed by children. The significant interaction of age group and reinforcement (A x B) tells us that the effect of the three reinforcement styles was different for adults than for children.

b.



c.

Source	R^2	df	Mean R^2	F
A	.0002	$a-1=2$	$.0002/2=.0001$	$.0001/.0027=0.03$
B	.8683	$b-1=1$	$.8683/1=.8683$	$.8683/.0027=317.29$*
A x B	.0330	$df_A df_B=2$	$.0330/2=.0165$	$.0165/.0027=6.03$*
S/AB	.0985	$N-ab=36$	$.0985/36=.0027$	
Total	1.0000	$N-1=41$		

All R^2 are from SPSS output. *: $p<.05$

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
ANOVA code A - Reinforcement	1.00	Praise	14
	2.00	Reproof	14
	3.00	None	14
ANOVA code B - Age group	1.00	Children	21
	2.00	Adult	21

Descriptive Statistics

Dependent Variable: Number of errors

ANOVA code A -	ANOVA code	Mean	Std. Deviation	N
Praise	Children	5.0000	1.41421	7
	Adult	16.8571	1.86445	7
	Total	10.9286	6.35446	14
Reproof	Children	7.1429	1.06904	7
	Adult	14.4286	2.07020	7
	Total	10.7857	4.09838	14
None	Children	6.0000	1.73205	7
	Adult	15.5714	2.07020	7
	Total	10.7857	5.29410	14
Total	Children	6.0476	1.62715	21
	Adult	15.6190	2.15583	21
	Total	10.8333	5.19811	42

Tests of Between-Subjects Effects

Dependent Variable: Number of errors

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	998.690[a]	5	199.738	65.882	.000
Intercept	4929.167	1	4929.167	1625.851	.000
anova_a	.190	2	.095	.031	.969
anova_b	961.929	1	961.929	317.285	.000
anova_a * anova_b	36.571	2	18.286	6.031	.006
Error	109.143	36	3.032		
Total	6037.000	42			
Corrected Total	1107.833	41			

a. R Squared = .901 (Adjusted R Squared = .888)

Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.013[a]	.000	-.051	5.32927

a. Predictors: (Constant), Effect code - Factor A code 2, Effect code - Factor A code 1

Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.932[a]	.868	.865	1.90987

a. Predictors: (Constant), Effect code - Factor B code 1

Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.182[a]	.033	-.017	5.24102

a. Predictors: (Constant), Effect code - Interaction A2*B1, Effect code - Interaction A1*B1

Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.949[a]	.901	.888	1.74119

a. Predictors: (Constant), Effect code - Interaction A2*B1, Effect code - Factor B code 1, Effect code - Factor A code 2, Effect code - Interaction A1*B1, Effect code - Factor A code 1