Final Exam PS 306, Spring 2004

1. What do the APA Ethical guidelines say about deception? What role does debriefing play in offsetting deception? (Pay particular attention to the Ross et al. article in answering the second question.) [10 pts]

Info is in your textbook and in the Ross et al. article.

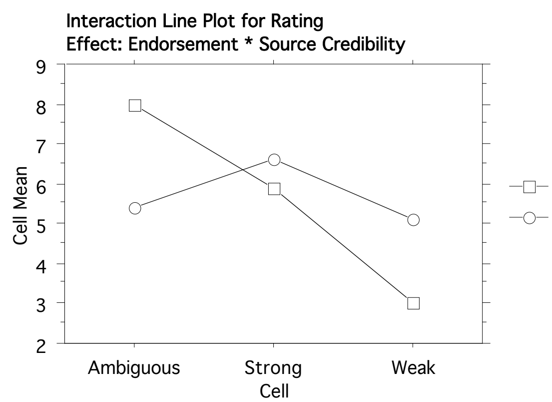
2. How seriously do people take product reviews? Chaiken and Maheswaran (1992) conducted an interesting experiment in which they varied the credibility of the review source and the general message of the review. They asked college students to read a review of a new telephone answering machine. The researchers told half the participants that the review came from a flyer printed by the discount store Kmart (low credibility) or from the magazine Consumer Reports (high credibility). Each participant then read one of three types of review, an unambiguous strong review, an ambiguous review (the answering machine was better than some machines but not as good as others), or an unambiguous weak review. The researchers then asked the participants to rate on a 10-point scale their willingness to buy the answering machine for $50 (10 = very willing to buy). The results of their study are replicated below. Complete the analysis and interpret the results of this study as completely as you can (as in a Discussion section). [10 pts] [Pittenger]

ANOVA Table for Rating

	DF	Sum of Squares	Mean Square	F-Value	P-Value	Lambda	Power
Source Credibility	1	.067	.067	.056	.8143	.056	.056
Endorsement	2	80.433	40.217	33.618	<.0001	67.235	1.000
Source Credibility * Endorsement	2	58.233	29.117	24.339	<.0001	48.678	1.000
Residual	54	64.600	1.196				

Means Table for Rating
Effect: Source Credibility * Endorsement

	Count	Mean	Std. Dev.	Std. Err.
High, Ambiguous	10	8.000	1.155	.365
High, Strong	10	5.900	1.101	.348
High, Weak	10	3.000	1.155	.365
Low, Ambiguous	10	5.400	.699	.221
Low, Strong	10	6.600	1.174	.371
Low, Weak	10	5.100	1.197	.379



There is a significant main effect for Endorsement, *F*(2,54) = 33.618, *MSE* = 1.196, *p* < .001. There is no main effect for Source Credibility, *F*(1.54) = .056, *MSE* = 1.196, *p* = .814. There is a significant interaction, *F*(2,54) = 24.339, *MSE* = 1.196, *p* < .001.

To interpret the interaction, I would first compute HSD = $4.2\sqrt{\frac{1.2}{10}} = 1.45$**. Thus, for a Weak Endorsement, people are more willing to buy the answering machine if it came from a Low Credibility source (*M* = 5.1) than if it came from a High Credibility source (*M* = 3.0). However, for an Ambiguous Endorsement, people were more willing to buy the answering machine if it came from a High Credibility source (*M* = 8.0) than if it came from a Low**

Credibility source (*M* = 5.4). Finally, for a Strong Endorsement, there was no difference in willingness to buy the answering machine whether it came from a Low Credibility source (M = 6.6) or from a High Credibility source (M = 5.9). Thus, it appears that when presented with a strong endorsement, the credibility of the source is less influential. However, if the information is ambiguous (maybe noting both positive and negative aspects of the answering machine), people are more likely to be willing to purchase the machine if the source has a lot of credibility (maybe highly credible sources typically find both pros and cons) compared to a source with low credibility. But if the endorsement is weak, people were more willing to purchase the answering machine if the source was low in credibility, suggesting that a weak endorsement from a credible source is sufficient to discourage people from purchasing the answering machine.

3. A scientist tests two drugs for their effects on insomnia. A sample of insomniacs is pre-tested with a placebo before bedtime, and the latency to onset of sleep is measured to serve as a baseline. A week later, the participants receive the first drug (Drug A) before bedtime, and the time that lapses between drug administration and sleep onset is measured again. Finally, a week later the second drug (Drug B) is tested in the same fashion. The latency to sleep onset in minutes is measured for each participant on every test. Complete the StatView output for this study and then interpret the results as completely as you can. [10 pts]

ANOVA Table for Drug

	DF	Sum of Squares	Mean Square	F-Value	P-Value	Lambda	Power
Subject	10	24587.879	2458.788				
Category for Drug	2	40418.182	20209.091	49.001	<.0001	98.001	1.000
Category for Drug * Subject	20	8248.485	412.424				

Means Table for Drug
Effect: Category for Drug

	Count	Mean	Std. Dev.	Std. Err.
Placebo	11	219.091	39.104	11.790
Drug A	11	164.545	31.738	9.569
Drug B	11	134.545	27.336	8.242

The first point one should make regarding this study is that it is a repeated measures design with no counterbalancing. There is a significant main effect for Drug, F(2,20) = 49.001, MSE = 412.424, p < .001. To interpret the main effect, you would need to compute HSD = $3.58\sqrt{\frac{412.4}{11}} = 21.92$ **. Thus, sleep onset latency was greatest for Placebo (*M* = 219) compared to Drug A (*M* = 164.545) and Drug B (*M* = 134.545). Sleep onset was greater for Drug A than for Drug B.**

4. Dr. Tori Ador was interested in studying the impact of cape color on instigating movement in bulls. She has a professional bullfighter use one of five cape colors (red, green, blue, black, and white). The DV is the time (in seconds) between waving the cape and the bull's movement toward the bullfighter. Complete the analyses below and interpret the results as completely as you can, with careful consideration to the advice you'd give Dr. Ador based on these results. [10 pts]

ANOVA Table for Time to Charge

	DF	Sum of Squares	Mean Square	F-Value	P-Value	Lambda	Power
Cape Color	4	.560	.14	.226	.9207	.903	.089
Residual	20	12.400	.62				

Means Table for Time to Charge
Effect: Cape Color

	Count	Mean	Std. Dev.	Std. Err.
Black	5	2.000	.707	.316
Blue	5	2.200	.837	.374
Green	5	2.000	.707	.316
Red	5	2.200	.837	.374
White	5	1.800	.837	.374

There is no significant effect for cape color. It may well be that the bulls are color blind. However, because of the difficulty of "accepting" the null hypothesis, you'd need to consider conducting a study with more power. In this case, you'd consider:
1. increasing the number of bulls
2. make the colors more vivid, or use different colors
3. reduce variability by using bulls who are more similar
4. consider using a repeated masures design

5. The social psychology of the experiment is quite interesting. From the experimenter's perspective, describe several studies that support the notion of experimenter expectancy effects (Rosenthal). From the participant's perspective, describe demand characteristics. [10 pts]

Class notes should allow you to answer these questions.

6. What is the relationship between power and effect size? That is, when you are considering a research design in which there is a large effect size, what are the implications for power? When you are considering a research design in which there is a small effect size, what are the implications for power? How would you typically add power to a study? [10 pts]

When effect size is large, you don't need a lot of power to detect the effect. Thus, when the effect size is small, you would need a lot of power to detect the effect.

To add power, you would consider:

1. using a repeated measures design, if practical to do so
2. increasing sample size
3. increasing the treatment effect
4. decreasing the error term (variability due to individual difference and/or random variability)