Announcements
No instructor office today
Next Aplia due tonight
Exam review features now functional

From last time…

Key Aspects of Emotional Experience

A. Subjective experience
B. Physiological responses
C. Cognitive appraisal
D. Facial Expression

Reviewing Key Perspectives
Key Aspects of Emotional Experience

A. Subjective experience
B. Physiological responses
C. Cognitive appraisal
D. Facial Expression

Expressed Emotion
- Culturally universal expressions

Facial Feedback Hypothesis
- Attaching two golf tees to the face and making their tips touch causes the brow to furrow.
III. Cognition & Emotion

C. Schacter & Singer: Cognition-Arousal theory
1. Emotion is a function of both Arousal and Cognition
2. Both necessary

2. Schacter’s infamous Study
a. "Suproxin" given as a drug to "improve vision"
b. While waiting for vision experiment, a "stooge" acted either irritated or euphoric
c. Subjects labeled their emotion as that which the stooge portrayed

Extending Schacter’s Perspective
D. Excitation transfer ("Spillover Effect")
1. Arousal from one situation will be interpreted consistent with subsequent cues
2. Shaky bridge experiment
Roller Coaster Study

For those riding with a nonromantic partner, ratings of attractiveness toward a photographed individual were higher among persons exiting than entering the ride.

Another example of excitation transfer...

- An arousal response to one event spills over into our response to the next event.

Arousal from a soccer match can fuel anger, which may lead to rioting.

Yet Another example?

Arousal from driving in traffic

Negative Cognitions & Actions
Cognition and Emotion

Cognition does not always precede emotion

Segue from emotion .... to Lie Detection!

Premise is that lying is accompanied by emotion!

Your Opinion: Would you take a polygraph test if accused of something you did not do?

1. You bet – I’d want to clear things up and prove my innocence
2. Maybe, but it’d depend on whether I felt there were other ways to clear things up (e.g. alibi)
3. Unlikely, unless my I felt I had few options
4. Not a chance!

Lie Detection Demo!!

Everything You Probably Should Know About “Lie Detection

The Difficulty in Detecting Lying

<table>
<thead>
<tr>
<th>Observer Group</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secret Service</td>
<td>64.1</td>
</tr>
<tr>
<td>Federal Polygraphers</td>
<td>55.7</td>
</tr>
<tr>
<td>Robbery Investigators</td>
<td>55.8</td>
</tr>
<tr>
<td>Judges</td>
<td>56.7</td>
</tr>
<tr>
<td>Psychiatrists</td>
<td>57.6</td>
</tr>
<tr>
<td>Special Interest</td>
<td>55.4</td>
</tr>
<tr>
<td>College Students</td>
<td>52.8</td>
</tr>
</tbody>
</table>

*chance = 50%
Spiel Overview

- Abbreviated history and overview of the conventional polygraph
- Limitations to conventional polygraphy
- Overview of alternatives: assessing recognition

The Polygraph Test

- Fundamental assumption is that physiological responding:
  - differs when one is truthful versus being deceptive,
  - or
  - demonstrates a specific physiological “lie response.”

Uses (and abuses) of Polygraph Tests

- Specific Incident Investigations
- Screening Situations
- Employee Polygraph Protection Act (EPPA; 1988)
- Expansion of Testing?
  - National Defense Authorization Act of 2000 requires scientists at nuclear weapons laboratories to submit to polygraph tests to maintain their security clearance

Instrumentation and Measures

- Polygraph invented in 1915 by Harvard-trained Ph.D., LL.B. William Moulton Marston
- Claimed it could detect lies by measuring blood pressure
- Not his main claim to fame
Approaches to Detecting Deception

<table>
<thead>
<tr>
<th>Emotion/Arousal</th>
<th>Memory/Recognition</th>
<th>Other Cognitive Correlates</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;The&quot; Polygraph</td>
<td>Guilty Knowledge Test</td>
<td>Response Conflict</td>
</tr>
<tr>
<td>Facial Expression</td>
<td>Autonomic (SCR)</td>
<td>Attention and Memory Load</td>
</tr>
<tr>
<td>Voice Stress</td>
<td>Central (ERP, fMRI?)</td>
<td>Both ERP and fMRI</td>
</tr>
<tr>
<td>Facial Blood Flow</td>
<td>Thermography</td>
<td>Linguistic Analysis</td>
</tr>
<tr>
<td>Demeanor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note that none detect lying *per se*

Text Figure 5.29

None of these regions specific to lying

The Polygraph Measures

- Blood Pressure Changes
- Breathing movements
- Palmar Sweating (Electrodermal Changes)

But NOT Lying!

Control Question Test (CQT; John Reid, 1947)  
(for Specific Incidents Investigations)

- Approximately 10 questions
- Relevant Questions  
  - address the subject matter under investigation
- Control Questions  
  - questions developed by the examiner after a pretest interview with the subject  
  - address generally questionable behavior
- At least 3 separate charts (i.e. 3 separate presentations of the set of questions) are administered
- The pretest interview stresses 2 ways to fail test, and that test is infallible

CQT "Theory" (Raskin, 1982)

- Innocent subjects should react with stronger emotion to the Control questions since their content are of greater direct concern
- Guilty subjects should respond with stronger emotion to the Relevant questions
- Comparing the magnitude of the responses (usually skin-resistance) to the control and relevant questions yield a verdict of Guilty, Innocent, or Indeterminate
The Polygraph in Cases of Allegations of Inappropriate Contact

“CONTROL” TEST QUESTIONS

- Did you touch Susie between her legs?
- Have you found teen girls attractive?
- Have you been naked in sight of Susie?
- Have you lied to try to stay out of trouble?
- Have you viewed pornography?
- Have you fantasized sexually about Susie?

 Typical Scoring

Polygrapher uses a global impressionistic decision-making strategy that incorporates:

- Case facts
- Examinee behaviors
- Polygraph Chart data
- Examiner's "professional" hunches and impressions

The Importance of Blind Scoring

- Expectancy Effects (the "60 Minutes study")
  - Three polygraph firms each examined four employees accused of theft of a camera (none actually stolen)
  - Without the knowledge of the employees, each polygrapher was told that a different employee was suspected by management
  - In each instance, the suspected employee was deemed guilty (probability by chance = 1.5%)

The CQT Box Score

<table>
<thead>
<tr>
<th></th>
<th>% Correctly Classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guilty</td>
<td>88%</td>
</tr>
<tr>
<td>Innocent</td>
<td>57%</td>
</tr>
<tr>
<td>Social Scientist's Research Weighted Total</td>
<td>88%</td>
</tr>
<tr>
<td>Professional Polygrapher’s Research Weighted Total</td>
<td>91%</td>
</tr>
</tbody>
</table>

after Iacono & Patrick, 1997
Assessing deception: Polygraph techniques.
In R. Rogers, Ed., Clinical Assessment of Malingering and Deception
New York: Guilford.
Why Using Confessions Overestimates Accuracy

Feedback Polygraphers Receive

Screening Tests

Because these tests have much higher false positive rates than false negative rates, they should not be used in instances where most folks are innocent.

<table>
<thead>
<tr>
<th>Test</th>
<th>Guilty</th>
<th>Not Guilty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guilty</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Not Guilty</td>
<td>40</td>
<td>50</td>
</tr>
</tbody>
</table>

Total correct verdicts = 59%

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Alternatives to Traditional Polygraph Procedures

The GKT as an alternative to Traditional Polygraph Procedures

<table>
<thead>
<tr>
<th>Guilty Knowledge Test (GKT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Devised by Lykken(1959)</td>
</tr>
<tr>
<td>Sometimes termed Concealed Information Test (CIT)</td>
</tr>
</tbody>
</table>

Guilty Knowledge Test (GKT)

- The GKT does not assess lying as indexed by fear of being detected, but probes for guilt as indexed by recognition.
- A series of questions is devised, each having several alternatives, only one of which is true about the crime in question.
- Chances of an innocent person looking guilty on a 10-item GKT are 1/5^10.
Assessing Recognition: For Specific Incidents Investigations

- Used when information about a crime or event is available that only a real culprit would know
- Series of questions constructed, only one of which has correct critical detail

Regarding the abduction location, do you know for sure it was...
1. ... at a Toy Store?
2. ... at a Shopping Mall?
3. ... at a City Park?
4. ... at a Friend's House?
5. ... at School?
6. ... at a Restaurant?

- Subject instructed to answer "no" to each item, so that if guilty, subject would be lying to the critical item.
- Critical item never positioned at beginning.
- A consistent peak of physiological response on the critical alternative suggests guilt.

GKT – Box Score, and Concerns

- Superior to CQT, especially in protecting the innocent
- Resistance to use among those in the polygraph community
  - Concern about applicability, especially in high profile cases
  - But used successfully by Japanese police force
- Despite limitations of CQT, may have utility for eliciting confessions

GKT Accuracy: Lab Studies

<table>
<thead>
<tr>
<th>Study (1st Author, Yr)</th>
<th>N</th>
<th>Percent Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lykken '59</td>
<td>98</td>
<td>88</td>
</tr>
<tr>
<td>Davidson '68</td>
<td>48</td>
<td>92</td>
</tr>
<tr>
<td>Podlesney '78</td>
<td>18</td>
<td>90</td>
</tr>
<tr>
<td>Balfour '79</td>
<td>34</td>
<td>61</td>
</tr>
<tr>
<td>Giesen '80</td>
<td>40</td>
<td>92</td>
</tr>
<tr>
<td>Bradley '81</td>
<td>192</td>
<td>59</td>
</tr>
<tr>
<td>Bradley '84</td>
<td>16</td>
<td>100</td>
</tr>
<tr>
<td>Iacono '84</td>
<td>55</td>
<td>91</td>
</tr>
<tr>
<td>Steller '87</td>
<td>87</td>
<td>85</td>
</tr>
<tr>
<td>Iacono '92</td>
<td>71</td>
<td>87</td>
</tr>
<tr>
<td>O'Toole '94</td>
<td>45</td>
<td>77</td>
</tr>
<tr>
<td>Study Median</td>
<td>88</td>
<td>100</td>
</tr>
</tbody>
</table>

Take Home Message

- There is no unequivocal lie response
- Traditional Polygraphy, which focuses on emotional reactions, suffers from an unacceptably high false positive rate (innocent folks look guilty)
- Assessing recognition may prove more accurate, but possibly less widely applicable
- Polygraphs are useful for eliciting admissions and confessions; i.e. “scare the hell out of people”

Your Opinion: Would you take a polygraph test if accused of something you did not do?

1. You bet – I’d want to clear things up and prove my innocence
2. Maybe, but it’d depend on whether I felt there were other ways to clear things up (e.g. alibi)
3. Unlikely, unless my I felt I had few options
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Cognition & Emotion

E. Cognition in depression
1. Distorted cognitions create depression
2. Cognitive distortions (or errors)
   a. Overgeneralization
   b. Selective abstraction
   c. Magnification & Minimization
   d. All or Nothing thinking
3. Therapy: Changing cognitions changes emotions
4. Sadder but Wiser phenomenon

Sadder but Wiser Study
(Alloy and Abramson)

Press Button A or Button B.

After each press…
Light Turns on (Win 25 cents)
or
Light remains dim (No Win)

"How much control did you have?"

No relationship between button pushed and winning!

Nondepressed people may suffer either from illusions of control or noncontrol, depending on the circumstances. These illusions help them to see themselves and their world with a "rosy glow" and may help them persist when things go wrong.