Human Emotion

Psychology 3131
Professor June Gruber
Human Emotion

Emotion Expression

*Why do we laugh and cry?*
Roadmap

Course Logistics

Laughter
Crying
Touch
Take-Away Qs & Expert Interview
Psi Chi is an International Honors Society whose purpose is to encourage, stimulate, and maintain excellence in scholarship of members and to advance the science of Psychology.

We foster community among CU’s Psychology majors who have obtained the highest academic achievement.
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1. Life-long membership
2. Networking opportunities
3. Attend Conferences (special access to scholarships!)
4. Scholarship and grant opportunities
5. Opportunity to purchase tassel for graduation
6. Looks GREAT on resume & CV
7. Contribute to the greater Boulder Community
8. Gain leadership experience
   - We are currently looking to fill several officer positions
9. Internship, volunteer, & career opportunities
1. You Qualify:
   - 3 semester of college courses
   - 9 credits in Psychology courses
   - Cumulative GPA of 3.0
   - Psych GPA of 3.3

2. You Apply:
   - You can find applications...
     • Psi Chi Chapter Website
     • Psi Chi Bulletin Board
     • Office: D446D
Office: Muen D446D
Email: psichi@Colorado.edu
Psi Chi International website: www.psichi.org
CUB Chapter website: www.colorado.edu/studentgroups/psichi/
Course Logistics

Exam 1 - Review Sheet
Handed Out Today in Class

Exam 1 - Special Accommodations
TBD Location

RECEIVE EMAIL: If you have not, you must before attending this special accommodations exam.
Course Logistics

Exam 1 - Review & Q/A Opportunities

1 - REVIEW SHEET
Handed out in class Tuesday, posted on course website

2 - OFFICE HOURS
Tues 1-2

Last-Minute Exam Review Qs: Mon 9/23 8:00-9:00pm (Canvas “Chat”)

3 - EMAIL QUESTIONS
Must Email by 5pm Mon 9/23 - Plan in Advance!

Ask Specific Questions (not “what do I need to know” about this term)
Roadmap

Wrapping up animal emotion

Laughter
Crying
Touch
Take-Away Qs & Expert Interview
Roadmap

Course Logistics

Why Study Animals?

Premises & Methods

Monkey See, Monkey Feel?

Canine Compassion & Rodent Rapture?

Take-Away Qs
Emotion Expression
Emotional Expressions

Bard et al., 1992; 1998; 2000; 2005
Emotional Expressions Smiling
Emotional Expressions Crying

Bard, 2000; 2005
Emotional Expressions: Surprise & Anger

**SURPRISE**

**ANGER**

Emotional Expressions

Dr. Lisa Parr
Emory University

Dr. Kim Bard
University of Portsmouth
Facial Action Coding System (FACS)

Developed Ekman & Friesen 1970’s

Categorize facial behaviors based on muscles that produce them

Unit of measurement = Action Unit (AU’s)

Specific AU combinations reflect emotions

Takes 80-100 hours to train on
Emotional Expressions Chimp (FACS)
Compared facial musculature

Compared facial landmarks

Arrive at ChimpFACS
www.chimpfacs.com

Vick et al., 2007; Waller et al, 2006
www.chimpfacs.com
FREQUENCY OF DISPLAYS IN DIFFERENT CONTEXTS
(Mean + SE)

Waller & Dunbar, 2005
Emotional Expressions Complex

Emotional Expressions Complex

Bard, Gasper, & Vick (2010)
Emotional Expressions Complex

“Like human smiling, there may be meaningful variations in bared-teeth displays”

(van Hooff, 1973)
Emotional Expressions

Can only be properly understood when:

- Careful objective coding of facial expressions are used (e.g., ChimpFACS)
- Focus on underlying emotion signaled by facial expression
- Consider context in which expression is being used to communicate message
<table>
<thead>
<tr>
<th>Expression</th>
<th>AU Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silent Bared-Teeth Display (SBT)</td>
<td>AU10, AU12, AU16, AU25</td>
</tr>
<tr>
<td>Smile</td>
<td>AU6, AU12, AU25</td>
</tr>
<tr>
<td>Scream</td>
<td>AU4, AU6, AU7, AU10, AU12, AU16, AU25, AU27</td>
</tr>
<tr>
<td>Relaxed Open Mouth (ROM)</td>
<td>AU12, AU25, AU26</td>
</tr>
<tr>
<td>Laughter</td>
<td>AU12, AU25, AU26</td>
</tr>
</tbody>
</table>

*Similar, but not Identical*
Emotion Experience
Complex Emotions Empathy

Empathy
- Ability to put yourself in another individual’s shoes.
- Need a “theory of mind” or ability to mentalize others internal emotions.

Frans de Waal
- Empathy in all species who live in groups (Preson & de Waal, 2002).

- Necessary for: (1) Group alarm and (2) Mother-infant relationship
Caveats

Careful not to anthropomorphize
ascribe human qualities to non-human entities

Lack of confirmatory self-report data

Behavioral similarity does not =
same psychological experience of emotion
Roadmap

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Canine Compassion & Rodent Rapture

Take-Away Qs
Asymmetric Tail Wag

- 30 dogs placed in cage with camera
- View (1) owner, (2) unfamiliar human, (3) cats, and (4) unfamiliar dominant dog

**Left Tail Bias** (RH = negative emotion):
Unfamiliar dominant dog

**Right Tail Bias** (LH = positive emotion):
owners, unfamiliar humans, cats

Canine Compassion  Guilt
Canine Compassion Guilt

Do dogs really feel guilty?

- 14 dogs videotaped repeatedly
- Coded for “guilty look” presence when disobeying owner’s command (not eat treat while owner was away) and varied whether owner’s knew of dogs behavior.
- No evidence of guilty look.
- Guilty look found more often when owners scolded dogs.
- Suggests guilt may be response to owner cues rather than appreciation of misdeed.

Horowitz, 2009
What Are Animals Thinking?
Probe animal morality, the "swarm intelligence" of a beehive, the amazing navigation talents of pigeons, and more. **Aired November 7, 2012 on PBS**
Canine Compassion Empathy

Dogs can read our feelings

- 18 pet dogs
- 4 separate 20-second encounters with humans (owners and strangers)
- Humans either hummed, talked, or cried
- Dogs most often comforted person by nuzzling and licking when human was crying
Animal cognition

Man’s best friend

Can dogs really show empathy towards humans?

Jun 30th 2012 | from the print edition

DOGS quickly become part of the family. Tales abound of dogs celebrating joy in a household or commiserating when tragedy strikes. This may not seem surprising after 15,000 years of co-evolution. But what hard evidence is there of dogs’ empathy with humans? A new experiment suggests that behind all the waggy tails there really is something deeper going on.

Past experiments have hinted that animals can feel sympathy. Rats and monkeys had been found to forgo food to avoid delivering electric shocks to relatives. Similarly, apes have recently been documented consoling one another after conflicts. However, all these experiments and observations were demonstrating an animal’s sensitivity to distress in other members of the same species. Deborah Custance and Jennifer Mayer of Goldsmiths College, London, set out to see if dogs could detect the emotional state of humans.

I feel your pain
"I think there is good reason to suspect dogs would be more sensitive to human emotion than other species"

- Deborah Custance

Custance et al. (2012)
Rodent Rapture
Roadmap

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Take-Away Qs
Roadmap

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Laughter

Crying

Touch

Take-Away Qs & Expert Interview
Ubiquity of Laughter

- We laugh about 17 times per day.

- We have industries devoted to making us laugh.

- Borat grossed $68 million in first 10 days Seinfeld one of most popular TV shows of all time.
Laughter Reflection Exercise

*Take 2-3 minutes: write this down*

What did you notice:

1. Elicitor?
2. What is going on in your body?
3. Features of laugh (what did it sound like?)
4. How long did it last?
5. Any possible social effects?
6. How did you feel after you laughed?
Evolution of Laughter
What’s in a Laugh?

Series of “sigh” exhalations
- Exhale = heart rate decreases
- Slows down heart rate, Signal to “rest and digest”

Brief acoustic bouts
- Series of staccato movements about 1/15 sec each
  Vowel-like utterances (e.g., ha-ha, ho-ho)

Laughter precedes language
- Emerged 4 million yrs ago, before humans put vowels & consonants together
15 facial muscles contract during laughter

Respiratory system:
larynx partially closed, so air intake occurs irregularly, causing gasping

Tear ducts activated (at times)

Face Becomes Red/Purple (at times)
As mouth opens and closes, struggle for oxygen intake continues, leading to red/purple color in face.
What does laughter sound like?
Laughter Dictionary

Jo-Anne Bachorowski
Developed a “Laughter Dictionary”

Not all laughs are alike
Cackles, hisses, pants, snorts, grunts, songlike laughs

Voiced Songlike Female
Voiced Songlike Male
Unvoiced Snort & Pant Male
Unvoiced Grunt Female
Unvoiced Snort Male
Unvoiced Snort & Cackle Male

Audio files courtesy of Jo-Anne Bachorowski
Gender Differences

Women
  Laugh more frequently than men

Men
  Laughs contain more snorts and grunts than women

Laughs Elicit Reactions

Voiced Laughs
-- perceived by others as signs of camaraderie

Unvoiced Laughs
-- unvoiced laughs (hisses, grunts, snorts) = not perceived as affiliative

Friends Laugh Differently

Friends
Vocalizations become overlapping and intertwined
Acoustic properties of laugh mirror each other
Called “Antiphonal laughter”

Laughter Builds Friendship
Unites people in brief 2-3 second periods of antiphonal laughter

What makes us laugh?
What Makes Us Laugh?
Triggers of Laughter - Robert Provine

(1) Examined triggers of laughter

(2) Secretly recorded bursts of laughter
Malls, street corners, cafeterias, etc.
1,200 laughs audiotaped & transcribed

(3) Humor Preceded 10-20% Laughs
“You just farted!”
What Triggers Laughter?
(The Other 80%)

“I see your point”
“I hope we all do well.”
“I told you so!”
“Are you sure?”
“What is this supposed to mean?”
Benefits of laughter
Why is Laughter Good for Us?

Example 1

Laughter builds social bonds
Laughter Builds Social Bonds
Two Ways

1. Social Contagion
   - We routinely laugh at the sound of another person’s laughter
   - Mirror neuron system in brain

2. Reward Value
   - Mutually beneficial social exchanges
   - Signals appreciation and shared understanding
   - Evokes pleasure (endorphins released, reward-circuit in brain stimulated)

Bachorowski & Owren (1995, 2001)
Why is Laughter Good for Us?

Example 2

Laughter promotes recovery from negative emotions
Laughter
Best Medicine?

Physiological features that make laughter healthy

- Reduces presence of stress hormones
- Decreases muscle tension
- Increases positive immune markers
- In diabetics, less increase in blood sugar after a meal
Laughter “Undoing Hypothesis”

EXPERIMENTAL PROCEDURE

PART I: Fear Film “Ledge”

PART II: Amusing Film
*LAUGHTER*

EMOTION MEASUREMENTS

Physiology

Fredrickson & Levenson (1998)
Laughing at Death

Laughter following bereavement predicts better outcomes

(1) 45 Adults: Death of Spouse in Past 6 months
   - Question: Does laughter promote healing?

(2) Interview with Spouses
   - “Tell me about your relationship with your deceased partner.”
   - 6 minutes to share narrative

(3) Coded expressions of laughter
   - Laughter predicts reduced grief at 14 & 25 mos. post-loss

Bonanno & Keltner (1997)
Roadmap

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Take-Away Qs & Expert Interview

Exam: Grade Distribution & Hand Back
Boys Don’t Cry
The Cure
The Crying Game
Boy George
10 Politicians Who Turned on the Tears in Public From Obama to Muskie

Nov 10, 2012 4:45 AM EST

President Obama cried this week while thanking campaign workers in Chicago. See John Boehner, Hillary Clinton, Newt Gingrich, and others get misty.

Barack Obama

Obama Cries in Final Speech - Last C

What's Wrong With The Republican Party? Where did they go wrong?...

STORIES WE LIKE

ROLLING STONE
The Obama Campaign's Real Heroes

YOUR TANGO
Jessica Biel's Sexy Reason She Loves Life With Justin Timberlake

BUZZFEED
28 Reasons Why Kids Ruin Christmas
Crying Reflection Exercise

*Take 2-3 minutes: write this down*

What did you notice:

(1) Elicitor?
(2) What is going on in your body?
(3) Features of cry (what did it sound like?)
(4) How long did it last?
(5) Any possible social effects?
(6) How did you feel after you cried?
Theories of crying
“It is a relief to weep; grief is satisfied and carried off by tears.”

Ovid (43 BC-17 AD)
1. Popular Articles: Crying is healthy
   - Analysis of 140 years of popular articles about crying
   - 94% suggest crying is beneficial
   - Suppressing tears is deleterious to body and mind

2. Cross-cultural study: Crying is cathartic
   - Survey spanning 30 countries
   - People report feeling better after crying

3. Psychodynamic Theories
   - Blocking tears --> Causes Psychological Damage
   - Encourage clients to cry in therapy sessions

4. Biochemical Theories
   - Tears rid body of harmful toxins
Is Crying Really Healthy?

Where’s the Evidence?
Contextual Factors
Crying Depends on Context

Example 1

Depends on how you measure crying
SURVEYS

Measure benefits of crying retrospectively.

60-70% report crying as cathartic (less tension, more relief).

LABORATORY STUDIES

Measure right after crying (1-2 min).

Report feeling worse (sad) and more physiologically aroused when watching sad films.
Crying Depends on Context

Example 2

Depends on social context
<table>
<thead>
<tr>
<th>AROUND OTHERS</th>
<th>ALONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Crying signals others to provide solace and comfort.</td>
<td>- No one to provide comfort.</td>
</tr>
<tr>
<td>- When around others, benefits may come from social support of others comforting the crier.</td>
<td>- Crying along does not reap positive health benefits.</td>
</tr>
</tbody>
</table>
Crying Depends on Context

Example 3

Depends on personality and gender of person
People who score higher in neuroticism (trait involving emotional instability) have more frequent crying episodes.

Adult women cry more frequently and intensely than men.
Crying Depends on Context

Example 4

Depends on emotional state of person
Depression
People in a depressed mood experience less improvement in mood after crying

Anxiety
Anxious people less likely to feel better after crying

Rottenberg et al., 2008; Rottenberg & Vingerhoets, 2008
Tears of Joy?
Restore emotional equilibrium after intense positive emotional experience
More Studies and Data are Needed!
Roadmap

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Take-Away Qs & Expert Interview
Touch Reflection Exercise

- What sensations?
- What kinds of thoughts going through your mind?
- What expressions on your face?
- Any changes in your tension, stress, etc?
Rewarding & Soothing Function
Touch is Rewarding

Orbitofrontal Cortex (OFC)
OFC associated with encoding reward value
Associated with self-reported pleasantness

Touch and OFC
Touching arm with velvety cloth activates OFC

Berridge & Kringelbach (2008)
Touch is Soothing

Cortisol
- Aka “stress hormone”
- Associated with increased reports of negative affect & stress

Oxytocin
- Aka “the love hormone”
- Associated with love, trust, and feelings of closeness

15-minute Swedish Massage
- Draw blood while receiving massage
- Associated with increased oxytocin & decreased cortisol
Touch is Soothing

Amygdala
- Located deep within medial-temporal lobes
- Activation in amygdala associated with stress and negative emotional responses

Awaiting Electric Shock in fMRI Scanner
- 16 Married Women
- 3 Conditions: (1) Alone vs. (2) Stranger hand holding vs. (3) Husband hand holding
- Amygdala response:
  - husband’s hand < stranger hand < no hand

Coan et al. (2006)
Touch is Soothing

Infants: Painful Heel Lance Procedure

- Painful procedure for sampling blood

- Study: (1) Infants held/touched by mother during procedure vs. (2) No touch

- Results: Infants touched cried 62% less, grimaced 65% less, & lower heart rate during procedure
Cooperation
Touch Increases Cooperation

Petition Signing
- Participants asked to sign petition supporting local issue
- Touched: 81% signed
- Not Touched: 55% signed

Cooperation (Robert Kurzban)
- Play prisoner’s dilemma game (can cooperate or compete with fellow player)
- Experimenter touched on back (vs. not) before game started
- When touched, more likely to cooperate
Communication of Emotion
Five-Second Touch Can Convey Specific Emotion, Study Finds

1st Person Touchee: Please extend arm under curtain.

2nd Person Toucher: “Think about how you want to communicate the emotions. The touches can take any form, and last as long as you think they need to. Try to be expressive as possible in your touch.”
What emotion is this person expressing?

**Negative:**
Anger, Fear, Disgust, Sadness

**Positive**
Love, Gratitude, Awe
To Touchee:
Please select which emotion was being expressed by the touch?

Anger
Fear
Disgust
Love
Sympathy
Gratitude
Embarrassment
Pride
Envy
etc
Communicate Distinct Emotions

TOUCH COMMUNICATES (6 emotions)
- Anger - Hitting or squeezing
- Fear - Trembling
- Disgust - Pushing and lifting arm
- Love - Stroking, finger interlocking
- Sympathy - Patting, stroking, rubbing
- Gratitude - Hand shake

TOUCH DOES NOT COMMUNICATE
- More cognitively complex self-focused emotions
- Embarrassment, Envy, Pride

Hertenstein et al. (2006)
No hugging: are we living through a crisis of touch?

Paula Cocozza

@CocozzaPaula
Wed 7 Mar 2018 09.46 EST

Illustration by Harriet Lee-Merrion
Roadmap

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Laughter

Crying

Touch

Take-Away Qs & Expert Interview
Experts In Emotion

*EXTRA CREDIT OPPORTUNITY*
Experts In Emotion Interview

Dr. Jo-Anne Bachorowski
Professor of Psychology
Vanderbilt University

Laughter
Thank You!

Psychology 3131
Professor June Gruber