“The human face - in response and in movement, at the moment of death as in life, in silence and in speech, in actuality or as represented in art or recorded by a camera - is a commanding, complicated and at times confusing sure of information.”

-Paul Ekman & W. Friesen (1972)
Human Emotion

Emotion Expression

Why do we laugh and cry?
Roadmap

Course Logistics

Laughter
Crying
Touch
Take-Away Qs & Expert Interview
Course Logistics

Exam 1 - Review Sheet
Handed Out Today in Class

Exam 1 - Special Accommodations
MUEN E212 (3 or 3:30-5:00pm) - LMK which start time!
Proctored by Graduate TA

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

Exam 1 - Review Opportunities

1 - OFFICE HOURS
Weds 2-3 (this week), Mon 2-3 (next week) : Email 24 hrs in advance

2 - EMAIL QUESTIONS
Must Email by 5pm Mon 2/12 - Plan in Advance!
Ask Specific Questions (not “what do I need to know” about this term)
Course Logistics

Outreach Project Partners - 5 mins

1. What is one topic you are considering?
2. What is one question you have?
SNACKS

1. Because it’s Tuesday afternoon
2. Because snacks $\rightarrow$ reward circuitry $\rightarrow$ positive valence states
3. Optional: Take only as much as you want
Roadmap

Course Logistics

Laughter

Crying

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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.
THE FOLLOWING PREVIEW HAS BEEN APPROVED FOR ALL AUDIENCES BY THE MOTION PICTURE ASSOCIATION OF AMERICA

THE FILM ADVERTISED HAS BEEN RATED RESTRICTED

UNDER 17 REQUIRES ACCOMPANYING PARENT OR ADULT GUARDIAN

www.filmratings.com

www.mpaa.org
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
Built for Laughter?

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

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?”
ROBERT R. PROVINE
LAUGHTER
A SCIENTIFIC INVESTIGATION

HA-HA-HA
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

Course Logistics

Laughter

Crying

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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.

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
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
Measure benefits of crying retrospectively.

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

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
### AROUND OTHERS

- Crying signals others to provide solace and comfort.
- When around others, benefits may come from social support of others comforting the crier.

### ALONE

- No one to provide comfort.
- Crying along does not reap positive health benefits.
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

Course Logistics

Laughter

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Take-Away Qs & Expert Interview
I Wanna Hold Your Hand
The Beatles
U Can't Touch This

- MC Hammer
**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)
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

Touch is Soothing
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 Toucheer: “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)
Roadmap

Course Logistics
Laughter
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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