

9.00 EXAM 2 NOTES

KOSSLYN CHAPTER 7 – Emotion and Motivation: Feeling and Striving

EMOTION → 4 components:

1. positive / negative subjective experience
2. bodily arousal
3. activation of specific mental processes and stored information
4. characteristic behavior

Emotions not only help guide us to approach some things and withdraw from others, but also provide visible cues that help other people know key aspects of our thoughts and desires.

Basic Emotion: an innate emotion that is shared by all humans → surprise, happiness, anger, fear, disgust, sadness

Many emotional behaviors (the outward acts that arise from our emotions) are inborn.

- People of many races and cultures use very similar facial expressions to signal similar emotional states.
- Blind people show those same expressions, even if they have never had the chance to observe the way others look when they have particular emotional reactions.

Ekman & Friesen (1971) – investigated whether all humans perceive the same set of fundamental emotions

- People in New Guinea tribe can identify the emotions underlying facial expressions in photographs of White faces.
 - Had difficulty with fear vs. surprise (these 2 emotions often go together)

Challenges to basic emotions → some of them are not simple

- Ex: disgust – there are 3 different kinds; positive emotions can be divided into 5 types
→ emotions shaped by cultures, learning
- Although people can recognize basic emotions of members of other racial groups better than would occur by chance alone, they generally recognize emotions of people from their own group better than those of people from other groups.
- However, this effect depended on whether their own group was in majority: Some members of a minority group may actually recognize emotions on faces of members of the majority group better than they do on faces of their own group. What matters is how often you see certain kinds of faces – the more you see them, the easier it is to recognize emotions in them.

Separate, but Equal Emotions → positive and negative emotions can occur at the same time, in any combination

- Supported by what happens in the brain when people experience emotions

2 separate systems → approach (positive) = left frontal lobe; withdrawal (negative) = right frontal lobe

THEORIES OF EMOTION

James-Lange Theory

Event → Arousal and Physiological Changes → Interpretation of Physiological Changes → Emotion
Different emotions arise from different sets of bodily reactions.

Support:

- Some emotions (ex: anger) are accompanied by particular patterns of heart rate, body temperature, sweating, etc.
- Bodily changes may contribute to emotion (ex: changes in the muscles of your face may play a role in how you feel!)
 - **Facial feedback hypothesis:** the idea that emotions arise partly as a result of the positioning of facial muscles
 - “putting on a happy face” → makes you feel happier

Problems:

- Facial feedback hypothesis → putting on a happy face is not the same as the genuine emotion!

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- There is no evidence that a specific and unique bodily state underlies each of our emotions. Bodily responses contribute to some of our emotions, but differences in bodily states are not enough to explain the range of our emotions – many emotions arise from similar bodily states.
- Even people with spinal cord injuries so severe that they receive no sensations from their bodies still report having emotions, so emotions do not necessarily arise when people interpret their own bodily states. That being said, do these people experience emotions differently than people with intact spinal cords?

Cannon-Bard Theory

Event → Arousal and Physiological Changes AND Emotion (in tandem)

Bodily arousal and the experience of emotion arise at the same time, and neither causes the other
Arousal is arousal... our bodies are aroused similarly in different arousing situations (ex: being mugged and winning the lottery)

Support:

- Fear – bodily reactions are triggered at the same time as the conscious experience of emotion

Problems:

- Meta-analyses / neuroimaging don't show clear patterns of bodily responses that distinguish the different emotions → Different emotions evoke overlapping patterns of brain activations, not distinct areas.
- Some emotions (but not all) are accompanied by distinct patterns of heart rate, body temperature, sweating, and other reactions... not all arousal is the same.

Cognitive Theory

Event → Arousal and Physiological Changes → Interpretation as a Function of Context → Emotion

Emotion arises when you interpret the situation (i.e.: your bodily state in the context of everything that surrounds it)

You don't react to a stimulus and then feel an emotion after the reaction, and you don't have separate bodily / emotional reactions. Rather, you interpret your reactions and the general situation together – and this interpretation forms the basis of emotions

Support:

- Schachter-Singer experiment – participants reacted very differently to the adrenaline injection, depending on what the confederate was doing; but when they were told in advance about the adrenaline and the fact that it causes arousal, they didn't feel differently in context to what the confederate was doing.
 - **Misattribution of arousal:** the failure to interpret signs of bodily arousal correctly, which leads to the experience of emotions that ordinarily would not arise in the particular situation

Problems:

- Not all emotions rely on cognitive interpretation (ex: fear is a reflexive response)

Emerging Synthesis

Event → Brain and Body Reactions → Emotion

→ Memories and Interpretation → Emotion

Emotions arise from a mixture of:

- Brain and body reactions (James-Lange theory) AND
- Interpretations and memories pertaining to the situation (Cannon-Bard and cognitive theories)

Some researchers are focusing on exactly how people interpret brain and bodily reactions.

- Claim that reactions produce *core affect* – consists of the “simplest raw feelings,” differing in the way they are positive or negative, and the degree to which they are strongly or weakly activated
- We then unconsciously categorize changes in core affect.

Context and previous experience may lead us to categorize types of core affect in ways that fit the situation, leading us to feel and express different emotions.

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FEAR → AMYGDALA

- Arises from changes in the brain, autonomic nervous system, hormones
- Changes in behavior: when people are afraid, they tend to “freeze,” have an increased tendency to be startled (*fear-potentiated startle*)

5 Important Facts About Fear:

1. *After you have learned to fear an object, fear can well up later as a kind of “emotional reflex,” with no cognitive interpretation.* The amygdala sends signals to other brain areas and structures (ex: the hypothalamus), which in turn trigger autonomic responses (ex: your heart speeds up, your muscles to freeze). Conscious awareness is not needed for a stimulus to trigger the amygdala into producing fear-related responses.
 2. *Once you learn to associate fear with an object or situation, you will always do so.* Fear is a type of classically conditioned response. It can be extinguished (extinction), but even after its extinction, the neurons that were linked by the conditioned association still fire together. Although extinction can block whether you express the emotion, the underlying connections are still there. Thus, the emotion of fear is still associated with the stimulus, even though extinction has eliminated the behaviors associated with that emotion. Even though you are not aware of the association, it is never fully lost.
 3. *In spite of the fact that cognitive interpretation is not necessary to trigger a previously learned fear response, mental processes can alter how easily the fear response occurs.* Ex: if you just imagine yourself in a scary situation, you are most susceptible to being startled. You can also acquire fear associations just by watching someone else be conditioned to fear a specific stimulus.
 4. *The amygdala does not play a direct role in producing the emotion “feel” of fear.* Patients with damaged amygdalae report experiencing positive and negative emotions as often and as strongly as normal people do.
 5. *In spite of the role of the amygdala in fear, neither it nor any other single brain area always gives rise to a particular emotion.* The amygdala actually responds when people experience both strong positive and negative emotions.
- There are distinct biological events that are associated with feelings of fear (fits James-Lange Theory). But these are not just bodily reactions – they also involve specific brain structures (ex: amygdala). But this same brain structure gives rise to more than one emotion.
 - The stimuli that trigger fear produce separately both the experience and the bodily reactions at the same time (fits Cannon-Bard Theory).
 - Cognitive events can alter fear response (fits Cognitive Theory), but fear can also arise without requiring a person to interpret the events (does not fit Cognitive Theory)
 - Emerging Synthesis includes roles for all of these factors → emotion is most consistent with this theory!
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HAPPINESS

- Leads people to broaden the scope of attention and to be open to new ways of understanding and responding to events
- Chronic state

What makes us happy?

- Money can buy happiness → People who once lived in poverty / deprivation tend to be happier when they are living in better economic conditions; but once a person has risen above the level of poverty and deprivation, additional material resources make little – if any – difference in happiness. A “blip” in happiness after winning the lottery / getting a raise.
- Life circumstances → how we are treated / pressure affects our happiness

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- Realistic expectations → Happy people are satisfied with their available resources, abilities
- Social support → the degree to which a person feels that other people are willing and able to listen and help
- Personality → In Western countries, assertive people tend to be happier than nonassertive people; extraverted people tend to be happier than introverted people
- Neural basis → activation of left frontal lobe.
- Genetics?

Positive Psychology: positive states of mind promote *resilience* (the ability to bounce back from adversity, to keep an even keel), personal growth, boost the immune system, help us cope with disease / stress

Emotional expression is crucial for our daily interactions with other people.

Display rules: a culture-specific rule that indicates when, to whom, and how strongly certain emotions can be shown (Ekman (1980)).

- Ex: at funerals, the closer the relation to the deceased, the more emotion may be displayed
- All people share the same basic emotions, but they sometimes express emotions differently because they follow different display rules.

Body language is shaped by the display rules of a culture; may result from innate factors

- Plays a role in conveying sexual interest (open postures show interest; closed postures show lack of interest)
- Twin studies: genes may influence body language

Emotional Regulation

We have the ability to prolong the experience of certain emotions.

We can also voluntarily reduce our emotional reactions.

- Suppressing emotions is correlated with changes in the activation of parts of the brain associated with emotion (ex: amygdala, hypothalamus).
- The frontal lobes play a key role in inhibiting processing in other parts of the brain and apparently inhibit responses in parts of the brain that underlie sexual arousal.

Emotional regulation is important for 4 reasons:

1. If emotions are not regulated, the behavior that results from them may be undesirable and problematic.
2. Only suppressing behavior that arises from emotions – rather than modifying the emotions themselves – can lead temporarily to reduced cognitive abilities (impaired memory for surrounding events, impeded ability to reason, impaired ability to communicate clearly).
3. Regulating – modifying – emotions prevents the negative cognitive effects of suppressing the emotionally driven behaviors.
4. Different emotions selectively affect different aspects of cognition, especially working memory.
 - Positive emotions: verbal tasks, interfere with spatial tasks
 - Negative emotions: spatial tasks, interfere with verbal tasks

Emotional Perception

We read emotions in part by interpreting cues from other people, and in part by imitating what we see.

The ability to read nonverbal communications is partly determined by experience.

When a culture makes emotions difficult to detect through more stringent display rules, it almost seems as though its members compensate by developing better abilities to detect emotions.

When we perceive an emotional expression, we subtly move our muscles to imitate it. Such imitation can occur even when people are not consciously aware of having seen a face displaying a specific emotion. Feedback from our muscles contributes to our ability to recognize emotions in others.

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KOSSLYN CHAPTER 7 – *Emotion and Motivation: Feeling and Striving*

MOTIVATION → the set of requirements and desires that lead an animal to behave in a particular way at a particular time and place

Emotions motivate us when we experience them and when we anticipate them, but some motives are based on biological needs or drives while still others are based on learning.

Instinct: an inherited tendency to produce organized and unalterable responses to particular stimuli
Instinct Theory: explains human motivation in terms of instincts; a behavior is “hard-wired” (i.e.: part of our inherited make-up)

Evolutionary psychology believes that we are predisposed to have certain goals and cognitive strategies.

- Problems: an instinct is a fixed behavioral pattern, but we are often not locked into very specific responses to many stimuli; difficult to test / difficult to know what our ancestors were like; some values are unlikely to be the result of heredity (ex: punctuality)

Drive: an internal imbalance caused by the lack of a needed substance or condition that motivates animals (including humans) to reach a particular goal that will reduce the imbalance.

Differ in terms of the goals to which they direct you, but all are aimed at satisfying a requirement
Drive Theory: focuses on the mechanisms that underlie tendencies / behaviors, whether or not they are innate; drives are linked with reinforcement

- Ex: when you are hungry, food reduces the imbalance experienced when you have the hunger drive

Homeostasis: the process of maintaining a steady state, in which bodily substances and conditions are kept within the range in which the body functions well

Arousal Theory → avoiding boredom, avoiding overload

Yerkes-Dodson Law = parabolic curve; we perform best when we are at an intermediate level of arousal (occur when we are challenged not too much and not too little). If we are underaroused, we are sluggish; if we are overaroused, we can't focus and sustain attention.

Incentive: a stimulus or event that draws animals to achieve a particular goal in anticipation of a reward; the foundation of much of what motivates us

Drive v. incentive → hunger is a drive, but dessert is an incentive

Thinking about motivation in terms of *expectations* of reinforcement → we tend to behave in ways that experience has shown us will produce a desirable outcome, either a positive consequence of the behavior (positive reinforcement) or the removal of a negative condition (negative reinforcement).

Incentives vary from person to person.

Learned helplessness: the condition that occurs after an animal has an aversive experience in which nothing it does can affect what happens to it, and so it simply gives up and stops trying to change the situation or to escape

- Expt: dogs put in a cage where they cannot escape shock will eventually give up responding and just endure the shocks... even when they are moved to a new cage in which it is easy to escape the shocks.

In humans, arises from lack of control over negative events → can lead to depression, stress-related problems

A particular motivation comes to the fore when have a *need* or a *want*.

Need: a condition that arises from the lack of a necessary substance (ex: food) or condition (ex: warmth); needs give rise to drives, which push you to reach a particular goal that will reduce the need.

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Want: a state that arises when you have an unmet goal that does not arise from a lack of a necessary substance or condition; wants turn goals into incentives

Types of Rewards:

- **Deprived reward:** reward that occurs when an animal (including a human) lacks a substance or condition necessary for survival and an action then produces this substance or condition; arises from the brain pathway that runs from certain parts of the brain stem, through the hypothalamus, on up to specific parts of the limbic system and the frontal lobes

Many of the neurons in this circuit use or are affected by the neurotransmitter dopamine.

- **Nondeprived reward:** reward that occurs when the animal (including a human) does not lack a substance or condition necessary for survival – in other words, when you had a want but not a need; the brain stem is involved in nondeprived reward; dopamine has no effects here

Lesions in the brain stem knock out the system that registers reward when an animal is not deprived, but leave intact that system for deprived reward

Need → Drive → Deprived Reward

Want → Incentive → Nondeprived Reward

Types of Needs

Psychological Needs → condition that arises from the lack of necessary information or the lack of an opportunity to exercise specific mental processes or behave in a specific way

- Ex: to be competent, to be independent, to have social approval, to be dominant / in control, to be affiliated with others, to be powerful, to be autonomous, to understand, to maintain self-esteem, to see the world in a positive light
- Individuals differ widely in such needs, reflective of genetic differences, different personal experiences, etc.

Need for achievement (nAch): the need to reach goals that require skilled performance or competence to be accomplished

- People who have a high nAch tend to assume that their successes are due to their personal characteristics, whereas their failures are due to environmental circumstances; interpret events in a way that will satisfy their nAch.

Maslow's Hierarchy of Needs

Self-Actualization Needs (be all that you are capable of becoming)

Aesthetic Needs (harmony and order)

Cognitive Needs (understand the world, creating curiosity)

Esteem Needs (Mastery and feeling appreciated by others)

Belongingness Needs (Sense of belonging and love)

Safety Needs (shelter, protection)

Physiological Needs (water, food, air)

Lower needs are more essential to life, and must be met before needs higher up can be addressed and satisfied.

Once a need is met, it becomes less important, and unmet higher-level needs become more important.

Problems: research has produced mixed evidence for the idea that needs are organized into a hierarchy; more important needs are more consistently met; fails to explain various phenomena (ex: why people voluntarily go to war and put themselves in the line of fire)

Culture affects which goals motivate us because the structure of a society often determines what sorts of activities will be reinforced.

- **Individualist cultures:** cultures that emphasize the rights and responsibilities of the individual over those of the group (ex: Anglo-Australia)

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- Focus on personal success, higher achievement motivation, produces competition, less self-liking
 - **Collectivist cultures:** cultures that emphasize the rights and responsibilities of the group over those of the individual (ex: China)
 - Emphasis on family, deemphasize competition among individuals, greater self-liking
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HUNGER

Metabolism: the sum of the chemical events in each of the body's cells, events that convert food molecules to the energy needed for the cells to function

Hunger arises from the action of 2 distinct brain systems:

- One leads you to feel a need to eat → brain senses the level of glucose, fatty acids in the blood
- The other leads you to feel full → stomach contains detectors that register the food value of its contents, sends information to brain

Appetizer effect: if the first bite tastes good, your appetite will be stimulated; driven by opioids in the brain (chemicals that cause you to experience pleasure)

Changes in appetite linked to activity of the hypothalamus → Neurons in the lateral hypothalamus initially fire when an animal sees or tastes a food and then reduce their firing after the animal has eaten its fill of that food. But the neurons are selective. After they stop responding to one food, they can still be stimulated by another food.

Eating with other people can lead you to eat more or less than you would when alone, but the precise ways in which others exert their influence are not yet known.

Insulin: a hormone that stimulates the storage of food molecules in the form of fat

Some of our tastes are a consequence of experience.

- Cognitive taste aversion can arise from classical conditioning
- Seeing a food in contact with something disgusting may be enough to make you avoid eating it.
- Food that resembles something unappealing is enough to make the food unappealing.
- Americans harbor exaggerated beliefs about the harmful effects of some foods (ex: salt, fat)
- Beliefs play a role in determining what we want to eat. (ex: "You are what you eat.")

Set point: the particular body weight that is easiest to maintain

- Body weight is relatively stable, but it can change if your environment, activities, emotional states, etc. change
- Brain systems involved in decision making and reasoning are connected to and can "overpower" the systems in the hypothalamus that underlie hunger. WE sometimes eat not because we're hungry but because we're bored or lonely, etc.

Over-eating: eating when your body doesn't need the energy.

- If you overeat for a prolonged time, the number of fat cells in your body increases to store the additional energy → gain weight!

It's much harder to alter your set point so that you weigh less.

Exercise can adjust your set point downward. Exercising can speed up your metabolism, leading your cells to need more energy even when you are not exercising. It is the best method of changing your balance of energy input and output, and thereby of losing weight.

Theories of Obesity

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1. Fat Personalities → not true. Obese people have the same “willpower” to resist eating junk food as nonobese people. According to one theory, people who become obese eat when they feel stress, as a kind of defense... but this is not always the case.
2. Fat Genes → some forms of obesity may have a genetic basis. The neurons in certain brain involved in registering satiety appear to rely on the neurotransmitter serotonin, and mutant mice that lack specific receptors for this neurotransmitter will keep eating until they become obese. If humans take medication that blocks these receptors, they will also gain weight; people who take drugs that activate these receptors report being less hungry, actually lose weight while on the medication.
3. Fat Environment → overeating is encouraged by many aspects of the American environment (cheap food, fast foods are high in fat, snacking is too easy and acceptable, food portions have grown larger), we exercise less, our amusements are sedentary
 - a. “curing the environment” → educate people to eat smaller portions; make tasty foods that are low in fat and calories more available; encourage more physical activity
 - b. Changes in environment can only be effective if the genes define a relatively wide range of possible weights for the individual.

Dieting

Diets work for moderate weight loss. If you want to lose weight, eat fewer calories and exercise more!!

SEX

Difficult to study because of the lack of candor; studies are flawed by selection bias and response bias

Masters & Johnson (1966) – first to study sexual behavior systematically

4 stages:

1. Excitement (during the initial phases, when the person becomes aroused)
2. Plateau (when the person becomes fully aroused)
3. Orgasm (accompanied by muscle contractions)
4. Resolution (the release of sexual tension)

Conclusions:

- Men and women are similar in their bodily reactions to sex
- Women tend to respond more slowly than men, but stay aroused longer.
- Many women can have multiple orgasms, whereas men typically have a refractory period, a period of time following orgasm, when they cannot become aroused again.
- Women reported that penis size is not related to sexual performance unless the man is worried about it.

Sexual response cycle: the stages the body passes through during sexual activity, including sexual attraction, desire, excitement, and possible performance

Hormones: chemicals that are secreted into the bloodstream (primarily by endocrine glands) and that trigger receptors on neurons and other types of cells; controlled in a large part by the pituitary gland, which in turn, is controlled by the hypothalamus (plays a major role in emotion and motivation)

Androgens: sex hormones that lead the body to develop many male characteristics, such as beard growth and a low voice

Estrogens: sex hormones that lead the body to develop many female characteristics, such as breast development and the bone structure of the female pelvis

Both types of hormones are present in both males and females, but males have more testosterone and females have more estrogen.

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Hormones lead to a tendency to want to behave in certain ways in the presence of particular stimuli (i.e.: they modify motivation).

Some people's bodies don't respond at all to certain sex hormones:

- *Androgen insensitivity syndrome*: in XY males, genetic mutation prevents receptors for androgens from developing properly, genetic males develop as physical girls

Effects of shifting hormone levels on desire: they are only tendencies, affecting different people to different degrees.

Oxytocin: hormone produced by the pituitary gland that increases dramatically in women immediately after they give birth; helps forget the mother-infant emotional bond; released after orgasm and may play a role in emotional bonding between sex partners

Theories about Mating Preferences:

- Trivers: parental investment → males are interested in having as many offspring as possible because they don't need to invest much time / energy in fathering a child, look for short-term relationships vs. females are interested in nurturing and raising children, look for long-term relationships
- Petersen: both men and women hope to eventually have a long-term stable relationship
- Men are particularly alert to their mates' possible sexual infidelity, whereas women are particularly alert to their mates' becoming emotionally involved with someone else
- Men and women value remarkably similar characteristics in a potential mate
- Harris (2000): asked participants to imagine different scenarios while she recorded their blood pressure, heart rate, and skin conductivity
 - Men and women show similar reactions to imagining themselves having sex versus being emotionally involved with someone else.

Mate selection does not arise solely from events at a single level of analysis

Sexual Orientation

Heterosexual: a person who is sexually attracted to members of the opposite sex

Homosexual: a person who is sexually attracted to members of the same sex

- In most cases, homosexuality is not the result of personal choice or of being raised a certain way. Much evidence indicates that biological events – particularly the functioning of the hypothalamus and the influence of genes – play a major role in determining sexual orientation.
- LeVay (1991): hypothalamus in homosexual men is half the size as compared to heterosexual men... confound: all homosexual men studied had AIDS
- Differences in parts of the ear / auditory responses
- Hamer et al. (1993): inheritance of homosexuality seemed to be related to homosexuality in the mother's family; a small portion of the X chromosome may be involved?
- One intriguing possibility: effects of the womb. Homosexual men are more likely to than heterosexual men to have older brothers → the mother's body "remembers" how many boys she bore (by building up specific antibodies?) and alters the level of testosterone accordingly. Boys with older brothers receive proportionally more testosterone during gestation, which appears to increase the likelihood that they will be homosexual.
- Some researchers have found that, on average, the relative lengths of the ring and index fingers differ for homosexual and heterosexual men. This relation only occurs for gay men who have older brothers.
- Many mixed results!!!

Bisexual: a person who is sexually attracted to members of both sexes

Sexuality is best regarded as a continuum.

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