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Chapter 1 : Cognitive Perspectives on Emotion and Motivation - Google Books

The reason for the Workshop was a felt need for researchers from disparate but related approaches to cognition, emotion, and motivation to communicate their perspectives and arguments to one another. To take just one example, the framework of information processing and the metaphor of mind as a computer has wrought a major revolution in.

Introduction[edit] Aristotle and Plato: There are many theories which have been developed over time in order to explain the process of Emotion. Even scholars such as Aristotle and Plato were trying to figure out what made people feel the way that they do and experience specific emotions Fortenbaugh, What makes some people happy and some people sad? Is it purely based on our facial expressions? Is it a chemical change in the body? Are emotions physically the same? There are three key sets of theories revolving around the concept of emotion. This chapter focuses specifically on cognitive theories of emotion. Psychologists interested in emotion have for some time been preoccupied with attempts to explain emotions in terms of cognitive processes. Relating emotions specifically to cognition seems to take something away from the concept of an emotion. This way of thinking means that emotions are just thoughts about situations we find ourselves in. However, cognitive theories appear to be the most recognised and accepted of the theories of emotion LeDoux, There are many key cognitive theories of emotion, but all theories centre around the same point, that it is the cognitive appraisal of a situation, not the event itself, that causes the emotion. Schachter-Singer Cognitive Arousal theory[edit] Schachter and Singer proposed that physiological arousal is necessary for an emotional response, but that similar patterns of arousal can occur for many different emotions Rathus, and Woods, For example, our heart rate increases and we start to sweat when we are both afraid and angry. Therefore, someone who experiences physiological arousal for no apparent reason will consider their surroundings and the situation they are in and then label the emotion using this cognitive appraisal Rathus, Schachter and Singer tested their theory in an experiment, the objective of which was to show that once the arousal is labelled as an emotion, the degree of a persons arousal determines the intensity of the emotion. The experiment consisted of four groups. Each participant was told that the purpose of the experiment was to assess the effects of vitamin injections on vision Woods, Group A was given an adrenaline injection and told of the side affects such as increased heart rate and sweating Group B was given an adrenaline injection and told incorrect information about the side affects such as itching Group C was given an adrenaline injection and told no information about the side effects Group D was given a saline injection acting as a placebo and given no information about the side affects Hassett, and Rathus, Half of the participants in each of the four conditions were placed with a happy person, who was laughing out loud and making paper aeroplanes, playing with a slingshot and building a fort out of manila folders. The results showed that participants in groups B and C reflected the behaviour and mood of the confederate much more than the participants in groups A and D Hassett, However, Schachter and Singers most important conclusion, that cognitive interpretations do affect emotional experience and behaviour, have been widely supported by further research Woods, For example, if Rachel was walking along and saw a snake, the snake being the stimulus would trigger a physical response such as increased heart rate and sweating. Rachel would subconsciously consider her surroundings and the situation she is in and then determine that she is afraid. Arnold believed that although Schachter and Singer had managed to explain how we deal with emotional responses once they occur, they had failed to address what generates the response in the first place. Arnold, Arnold proposed that appraisal is the mental assessment of the potential harm or benefit of a situation. She stated that emotion is the felt tendency towards anything that is appraised as good or away from anything that is appraised as bad Arnold, The appraisal process happens unconsciously, however the resulting response is registered in consciousness as an emotional feeling Ledoux, For example, if Rachel was walking along and saw a snake, she would subconsciously appraise the situation and want to run away from the snake her action tendency, either to stay if the stimulus is appraised as good or to flee if the stimulus is appraised as bad. The action tendency would be consciously registered as an

emotional feeling fear. In his experiment, Lazarus showed a gruesome film clip of a circumcision ritual involving teenage members of an aboriginal Australian tribe to three groups of participants. The film clip was accompanied by one of three soundtracks. The third soundtrack was more detached and focused on the intellectual perspective of the film clip, such as the surgical technique Hassett, Lazarus suggested that different soundtracks caused the participants to appraise the films in different ways and this led to different feelings about the situation Lazarus, He argued that emotions can be started automatically unconsciously or consciously, but emphasised the role of higher thought processes and consciousness in coping with emotional reactions once they exist. For example, If Rachel was walking along and saw a snake, she would cognitively appraise the situation as bad, her heart beat would increase and she would start sweating and she would then feel the emotion and decide how to act. In his book, The Psychology of Interpersonal relations, Heider was concerned with they way that people use common sense to try and understand and explain events which occur, and the actions of other people and themselves Hassett, A Key element of Attribution theory is the concept of self perception, which is a term used to describe the ways in which people often draw conclusions from observations of their own behaviour. The concept of self perception has become one which is seemingly important in the study of emotions. Participants in Groups B and C who had received adrenaline injections, misattributed the cause of their physiological arousal to the happy or angry situation they were placed into. This has led to a series of studies on self-perception and the misattribution process, in which people are purposely given false information about internal states to see how they would interpret it and how it would affect their perceived emotions Hassett, One study conducted by Valins in , male college students were asked to rate the attractiveness of women in sexually provocative pictures whilst they listened to what they were told was their heartbeat Hammond, The sound they were listening to was a fake heart beat, which was controlled by the experimenter. Periodically the heartbeat rate was increased so that the participants believed that their own heart beats were increasing. Participants rated the women who they when they heard their heartbeat going faster as more attractive than those women whom which they did not hear their heart beat increasing for. The results of this experiment and the many others which have been conducted indicate that external information can lead people to draw conclusions about their own internal states. Peoples emotions can be affected by the factors which occur in their external environment Hammond, For example, Rachel is walking along with her friends when one of then hears a rustle in the bushes. If her friends were to run away screaming, Rachel would interpret her physiological reaction to the environment as fear and her instinct would be to flee. However if her friends appeared excited and inquisitive about the rustle in the bushes, Rachel would interpret her physiological reaction as excitement. It is a theory which combines both cognitive elements of emotion and biological elements of emotion LeDoux, The theory suggests that individuals experience emotions and have a physiological reaction to a stimulus at the same time. It was developed in order to contest the James- Lange Feedback theory of emotion, which stated that we physiologically respond to a stimulus first, and the feedback from this response then generates an emotion Leahey, Cannon and Bard believed that this was incorrect, and that both a physiological response to a stimulus, and the experience of an emotion, occur at the same time. The concept behind the theory is that the thalamus is a central factor in generating emotional experience and behaviour LeDoux, The Cannon-Bard theory built up on the fact that the sensory systems that take in information from the outside world send the information to specialised regions of the cerebral cortex and onto specialised cortical areas. However, Cannon and Bard suggested that in their travels towards the specialised cortical areas the sensory messages make a stop in subcortical areas- in thalamic relay stations Cannon, These thalamic relay stations are specialised for particular sensory processing for example visual stimulus goes from the eyes to the visual thalamus and on to the visual cortex and auditory stimulus goes from the ears to the auditory thalamus and on to the auditory cortex. However some thalamic relay stations send the information to the hypothalamus, not to the cortical areas. This means that the hypothalamus receives sensory input at about the same time as the cortex, allowing the hypothalamus to activate the body to produce the automatic and behavioural responses characteristic of emotional reactions. Therefore, the emotional response is triggered by

the hypothalamus at the same times as the physiological response to the stimulus is triggered by the cortex Cannon, For example, if Rachel was walking along and saw a snake she would immediately cognitively perceive the snake. The snake being a visual stimulus would trigger the thalamus to relay messages to both the visual cortex and to the hypothalamus. Which example seems to be the most suitable? How do you think you would respond in her situation? Although all of the theories listed above seem to have at least some element of reality to them it is hard to determione which theory, if any, defines the process of emotion exactly. Scholars from many disciplines are constantly challenging the cognitive theories of emotion and the biological and socio-cultural theories as well. However there seems to be a consensus that cognition is a necessary part of the emotion forming process. Quiz References[edit] Arnold, M. New York, Columbia University press. Great Britain, Fourth Estate Publishing. Blackwell Publishers, United Kingdom. Cognition and Emotion, 6, American psychologist, 46 4 , Leahey, T. United States, Prentice Hall. Cognition and Emotion, 1, Understanding Motivation and Emotion, Fifth Edition. Psychological Review, 69, Multimedia feedback The accompanying multimedia presentation has been marked according to the marking criteria. Written feedback is provided below, plus there is a general feedback page. Responses to this feedback can be made by starting a new section below. If you would like further clarification about the marking or feedback, contact the unit convener. If you wish to dispute the marks, see the suggested marking dispute process. This presentation provided a basic, narrated bullet-point slide presentation. Establish why this topic is important in the general introduction. Describe the key focus questions. Narrative voice should be slowed down to allow the ideas to sink in for the viewer. More variation in tone could be used to help with reader interest. Strong emphasis on theory; but not so much on research Presentation license provided.

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Chapter 2 : Cognitive Theories of Motivation

This book presents the contributions of the members of an Advanced Research Workshop on Cogni ti ve Science Perspectives on Emotion, Motivation and Cognition.

Posted on August 5, by ChrisPercy29 The purpose of this section is to give you an introduction to principles of motivation and emotion. Theories of emotion explain how we experience and interpret emotion on a physiological, cognitive, and social level. Motivation Generally Motivation is essentially a force which acts upon you, causing you to behave a certain way or perform a certain action. Motivational theorists look at motivation in terms of three variables: Activation is basically initiative. Persistence is really about the durability of a behavior â€" more highly motivated behaviors persist, even if they are not immediately successful. Intensity is really about energy or vigor â€" more highly motivated behaviors deserve and get more of your time, energy, and effort. Motivational Theories Motivational theories are really just ways of interpreting behaviors by suggesting some sort of cause, purpose, or rationale behind the behavior. Instinct theories of motivation take an evolutionary perspective. James and McDougall came up with a list of instinctual fixed action patterns such as attachment, curiosity, sociability, and play. Generally, drives are useful for explaining biological needs such as hunger, sleep, and sexual drives. Drives may also explain certain psychological needs, such as reducing cognitive dissonance by engaging in rationalizations â€" the rationalizations are a response to a drive to reduce dissonance, a psychological state of tension. The key term is homeostasis, or balance. Arousal theories suggest that optimal arousal is the goal, rather than homeostasis. This is useful for explaining personality differences, such as the difference between extroverts who require more stimulation and introverts who may require less. Arousal theories explain emotional phenomena such as stress, boredom, and depression. They also help to explain reckless, sensation-seeking kinds of behaviors. Incentive theories are useful for explaining behaviors which are motivated by extrinsic, rather than intrinsic forces. In contrast to incentive theories, humanistic theory focuses on the importance of intrinsic internal psychological and emotional needs. For example, you may do your job well not because you are paid to do it extrinsic but because you enjoy the work a goal or because it means something to do good work a value. Biological Motivation â€" Eating and Energy Homeostasis Our biological drives are good demonstrations of motivated behavior and the impact that motivation can have on your bodily and psychological function. Energy homeostasis is the process of maintaining body weight and mass by balancing the amount of energy in and energy out â€" stabilizing the relationship between blood glucose, insulin, and basal metabolic rate resting energy use. Energy balance exists when your ingestion of calories energy matches your use of calories through exercise and activity. This will maintain weight, whereas a positive energy balance more energy in than out will result in an increase of fat cells stored energy in the adipose tissue. Negative energy balance more out than in will result in energy being drained from the reserves in adipose tissue, leading to weight loss. In order to maintain this balance, eating has to happen in response to a biological need. Slight drops in glucose and increases in insulin are pretty good predictors of eating behavior â€" when eating takes place, glucose and insulin levels return to normal. The same is true for ghrelin, which is secreted by cells in the stomach lining and increases sharply just prior to eating. After eating, ghrelin levels return to baseline. During eating, stretch receptors in the stomach send signals to the hypothalamus which signal satiety â€" the satisfaction of the hunger drive. There are also internal signals which regulate long term eating behaviors, rather than single-instance eating behaviors. These long-term signals have more to do with regulation and maintenance of body weight, and they include leptin, insulin, and neuropeptide Y. In general, secretion of neuropeptide Y triggers eating and promotes fat storage, whereas secretion of leptin and insulin decrease eating behaviors. Obesity and Weight Maintenance Obesity is a substantial problem in the U. Factors implicated in obesity range from hormonal disruptions due to dyssomnias, genetic issues, hypothyroidism, and psychological issues to behavioral problems such as impulse control, a sedentary lifestyle, and the cafeteria diet effect. Social issues

can also create a propensity toward obesity; most of us learn our eating and exercise habits from our parents and immediate families, which may also reduce social incentives to lose weight. Researchers generally conclude that there are behavioral and social causes which may or may not also have an underlying genetic influence; for example, leptin resistance creates a physiological predisposition toward obesity if it is not managed through diet and exercise. One of the most significant problems for individuals who are seeking a healthy body weight is the existence of a set point. This is because we are actually programmed with a prejudice in favor of weight gain, rather than loss â€" for our hunter-gatherer ancestors, surviving a famine promoted survival. Although this biological predisposition remains, the ready availability of food makes this artifact of our evolution a problem, rather than an advantage. This is why individuals who lose a few pounds find that their weight loss ceases after a few weeks, despite continued dieting. Sexual Motivation The drive for sex is another example of a behavior that can be explained in terms of balance and homeostasis. Human sexuality is often described in terms of four stages: More or less, sexual thoughts or the presence of an attractive person cause hormonal changes, creating an internal state of tension which is not resolved until orgasm is achieved. The sex drive appears to be motivated by the secretion of testosterone, which is eventually metabolised whether or not you have sex. It results in increasing levels of excitement and CNS arousal, culminating in orgasm â€" the rapid contraction of pelvic muscles resulting in a feeling of release and satisfaction. Obviously, monogamy is not universal. However, the majority of people engage in relationships one-at-a-time, and most people will eventually commit to a for-life monogamous relationship. This is possibly a relic of our evolutionary past, where pair-bonds ensured survival for your mate and your offspring. Oxytocin, a hormone released during sex, intimate contact, and childbirth, promotes feelings of closeness, bonding, and attachment. So there may also be a physiological basis for the tendency toward monogamy â€" although there is also evidence that the release of oxytocin is highest with a new partner, and that this effect might be stronger in some individuals than it is in others. Psychological Motivators Humanistic psychologists focus on psychological needs as the motivators for behaviors, suggesting that our goals, ideals, values, beliefs, and expectations motivate us just as much as our biological drives. The Hierarchy of Needs, created by Abraham Maslow, is a model of motivation which incorporates both physiological needs and psychological drives, culminating with self-actualization. Self-actualization can be defined loosely as a high degree of synchrony between your goals, values, self-concept, dreams, and actions. Individuals who are self-actualized are dynamic, genuine, real, autonomous, open, and appreciative. However, to get to this point all of the other needs in the hierarchy must be satisfied â€" you cannot ignore your physical drives to achieve self-actualization. Deci and Ryan more recently developed self-determination theory, which emphasizes that we are motivated to grow toward greater levels of autonomy, relatedness, and competence. Autonomy here means behaving in a way which is intrinsically, rather than extrinsically motivated. People who are autonomous do what they do because it matters to them, not to others. This produces a higher degree of personal fulfilment and satisfaction. Competence is the ability to respond to challenging situations by using your unique skills and abilities. Relatedness is the opportunity to share your values and accomplishments with others. Components of Emotions Emotions are complex physiological and psychological experiences which can be strong motivators in and of themselves. They involve three components: Use of emotions as information requires emotional intelligence and practice interpreting the non-verbal experience of emotions. Although the purpose of emotions is not exactly clear, most scientists agree that we evolved the capacity for emotions because they provide information and allow us to share information with other members of our family and community. The basic emotions fear, happiness, surprise, anger, disgust, and sadness reinforce this idea, because they are universally recognized regardless of culture, language, or race. This underscores the notion that emotions are about sharing information. The Subjective Experience The trickiest component of emotions is the subjective experience. Emotions can be analysed and organized based on activation the intensity of the arousal , valence whether it is positive or negative , and interpersonal engagement whether the emotion is social, or personal. The interpersonal engagement piece is particularly important when we talk

about cultural differences in the expression and experience of emotion; for example, americans of european heritage tend to be less aware of the social context of their emotions, so their awareness of interpersonal engagement is lower than individuals of east-asian heritage. Physiological Arousal and Activation The experience of emotion depends on the activation of physical systems such as the autonomic nervous system and the limbic system. Although research has demonstrated subtle differences in the kind of physiological activation we associate with different emotions, the general rule is that emotions require activation of the sympathetic nervous system and activation of the amygdala â€" the portion of the brain responsible for interpreting emotional experiences. The activation of the amygdala is based on sensory input â€" for example, seeing a bear in the woods results in signals eventually reaching the amygdala, which then communicates with the hypothalamus and medulla to begin activation of the sympathetic nervous system. There are two pathways â€" direct and indirect â€" which can be thought of as pre-process and post-process. For example, the image of a bear is routed to the thalamus, then to the visual cortex, then to the temporal lobe for identification , and then to the amygdala. This is the indirect pathway, which yields slower but more accurate responses. There is also direct communication between the thalamus and amygdala, resulting in a more unconscious response to the stimulus before it has been fully processed. This allows us to respond and possibly escape while we are determining the level of danger, rather than having to wait around for the processing to be completed. Behavioral Expression of Emotions Behavioral expression can be divided up into two broad classes. The expressions for basic emotions appear to be pre-programmed based on evolution. These are governed by external rules called display rules, and these rules determine not just how emotions are expressed, but who can express them and when. Display rules are really a collection of norms and expectations that help us to understand, filter, and interpret the complex emotions of other people. When people violate these norms we feel confused, awkward, or alienated. So understanding display rules and being able to express emotions appropriately is a function of our participating in society at large, not just a personal experience. Theories of Emotional Interpretation Having looked at the components of emotional experience, the only remaining question is the sequence in which these components are experienced and how that sequence affects our interpretation of emotions. More or less, the brain recognizes a particular physiological state as being associated with a familiar emotion. This feedback-based theory has some support, including the facial-feedback hypothesis, which indicates that we do evaluate our physiological states when interpreting our emotions. This represents an almost complete reversal compared to James-Lange. Cognitive-appraisal theory is useful for understanding the interaction of personal and cognitive factors, such as self-efficacy or locus of control, and our experience of emotions.

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The above theories are but a few samples of the many variations of cognitive theories of motivation that are extensively and effectively utilized in education, at the workplace, in sports, and with health and fitness issues such as those involving proper nutrition and substance abuse.

Find articles by Kimberly S. Braver Find articles by Todd S. Louis, Campus Box , St. Received Jul 27; Accepted Oct 4. This is an open-access article subject to a non-exclusive license between the authors and Frontiers Media SA, which permits use, distribution and reproduction in other forums, provided the original authors and source are credited and other Frontiers conditions are complied with. This article has been cited by other articles in PMC. Abstract It is becoming increasingly appreciated that affective influences can contribute strongly to goal-oriented cognition and behavior. However, much work is still needed to properly characterize these influences and the mechanisms by which they contribute to cognitive processing. An important question concerns the nature of emotional manipulations i. Empirical evidence suggests that both kinds of manipulations can influence cognitive control in a systematic fashion, but investigations of both have largely been conducted independently of one another. Likewise, some theoretical accounts suggest that emotion and motivation may modulate cognitive control via common neural mechanisms, while others suggest the possibility of dissociable influences. Here, we provide an analysis and synthesis of these various accounts, suggesting potentially fruitful new research directions to test competing hypotheses. This ability is thought to depend on cognitive control, a collection of mechanisms, including perceptual selection, response biasing, and online maintenance of contextual or goal information, by which the human cognitive system adaptively configures itself to optimally perform specific tasks Miller and Cohen, ; Braver et al. Most of the goals pursued in daily life are emotionally or motivationally meaningful â€” i. It has long been understood that such affective significance is central to determining the goals around which human behavior is organized; indeed, impairments in affectively driven goal-pursuit may be a critical component of a number of psychiatric disorders, such as depression and schizophrenia Pessoa, Consequently, the psychological and neurobiological mechanisms by which affective influences modulate cognitive control have become of major interest in recent years and continue to be an important emerging topic of study. Much of the experimental research examining how affect modulates cognitive control has involved one of two types of manipulations: However, for the most part, these bodies of research have been carried out independently of one another. In a recent review, Pessoa aimed to ameliorate this situation by considering examples of both an emotional manipulation threat and a motivational manipulation reward on cognition within a common conceptual framework Pessoa, His review suggests that both threat and reward operate in highly similar ways, impacting cognitive performance at both perceptual and executive stages of information processing. However, Pessoa acknowledges that emotion and motivation are broad constructs, the impacts of which may not be comprehensively characterized by the phenomena of threat and reward alone. In contrast, and as described further below, other theories of emotion and motivation suggest the possibility of dissociations between the two constructs e. Thus, the goal of the present paper is to discuss more explicitly existing theoretical accounts regarding the relationship of emotion and motivation to cognitive control, examine how they may relate to one another, and speculate on commonalities and differences in the mechanisms by which they operate. We also suggest future research directions that could be pursued to clarify ambiguity regarding the emotion versus motivation distinction. Terminology and Conceptualization Emotion and motivation are highly related constructs within the domain of affect Rolls, ; Lang and Bradley, , but their influences on cognition generally have not been explicitly considered in relation to one another. When examining the literature regarding the impact of each on cognitive performance, it is important to provide working definitions of relevant terms, so as to begin more carefully examining how these constructs may relate to one another. As this description suggests, emotion is generally conceptualized as a construct that can be decomposed into multiple subcomponents defining the relation

between individual and environment. More recently, Roseman asserts that emotion can be thought of as a syndrome of phenomenology thought and feeling qualities , physiology neural, chemical, and other physical responses in the brain and body , expressions signs of emotion state , behaviors action tendencies or readinesses , and emotivations characteristic goals that people want to attain when the emotion is experienced. Gendron and Barrett similarly claim that emotions are comprised of subprocesses, including an affective and cognitive e. Common to all of these definitions is the idea that emotions are an affective experience that can be characterized by physiological changes and defined by a cognitive construal of some kind. As states indexing occurrences of value, emotions have been proposed to carry functional value in physiologically preparing the body for action, permitting flexibility of behavioral responses to reinforcing stimuli, facilitating communication and social bonding, and influencing cognitive processes including evaluation, memory encoding, and memory recall Rolls, Motivations are similar to emotions in that they also serve to define the relation between the individual and the environment Roseman, , but differ from emotions in being more tightly linked to action and explicit goal associations; motivated action can be thought of as behavior that is at least partly determined by a desired and hedonically laden end-state i. Pessoa suggests that motivation can be commonly defined as what makes one work to obtain reward or to avoid punishment. Similarly, Roseman proposes that a motivation is an internal state producing behavior which moves the individual toward desirable reference values or away from undesirable reference values. Carver suggests a useful distinction between the two constructs as they relate to goals: Similarly, Rolls suggests that emotions are states elicited by rewarding and punishing reinforcers of behavior. Likewise, Lang and Bradley claim appetitive and defense-related brain circuits have evolved to cope with motivationally significant stimuli in the environment; positive and negative emotion, respectively, are associated with the experience of these brain circuits being activated. Thus, according to this general view, emotion can be considered an emergent property of motivationally driven neural activity. However, the Lang and Bradley view also suggests that emotion is highly characterized by hedonic experience, which accordingly is also tied to the activation of motivational neural circuitry. Buck and Laming , commenting on D: A contrasting perspective can be drawn from the work of Kent Berridge, which has highlighted the potential dissociation between activation of motivational circuitry and the neural systems that code for hedonic experience Berridge, , ; Berridge and Robinson, , ; Berridge et al. He proposes that the hedonic i. This work suggests that the constructs of emotion and motivation might involve separable neural mechanisms, and as such may have distinct influences on cognitive processing. Psychological accounts postulating theoretical distinctions between emotion and motivation have been less common. However, Roseman has recently suggested key differences: Roseman argues that motivations are specific, relatively deliberate, and associated with a specific goal. In contrast, emotions are produced by multiple contingencies, are somewhat more impulsive, and are not tightly linked to a particular goal. Additionally, he suggests that emotions typically take precedence over motivations: From these working definitions and theoretical accounts of the relationship between emotion and motivation, we suggest that an emotion may be presently considered a construct of multiple processes that together serve to provide an index of value associated with an internal or externally experienced state. While a motivation may be similarly comprised of multiple components, a motivation should be considered a state that produces behavior specifically oriented to carry out a goal that has hedonic value. Examining the influences of emotion and motivation on cognitive performance may be fundamental to clarifying the relation between these constructs; currently, however, these investigations have been conducted largely in parallel. The goal of this paper is to integrate these literatures by highlighting some key theoretical accounts of emotional and motivational influences on cognition, and illustrating where empirical evidence suggests these influences may diverge. To facilitate comparison between the emotional and motivational literatures, we have chosen to restrict the focus to studies involving positive emotions and reward incentives. Positive Affect and Cognitive Control Gray and Braver postulate that investigations of emotional influences on cognitive control should fulfill two global aims. The first is to determine whether emotional influences can and do have a selective influence on cognitive control: The second aim is to elucidate the

mechanisms by which such influences operate. In the present section, we discuss psychological theories regarding the adaptive value of positive emotion on cognition as well as theories regarding the specific mechanisms by which positive emotion takes its effect. It has been suggested that positive emotion might be an adaptive signal indicating safety and security in the environment, giving the organism the freedom to explore and engage in new opportunities Fredrickson, Building on this postulation, several psychological theories have suggested that positive affect serves to broaden cognition, promote creative problem-solving, and improve cognitive flexibility. Foundational work in this area was conducted by Isen and Daubman , who observed that positive affect induction led to broader categorization and facilitated creative problem-solving Isen et al. In the cognitive domain, empirical support for the broaden-and-build theory has come from visual processing and semantic association tasks suggesting a broader scope of attention Fredrickson and Branigan, Different theories have been posited to explain these effects. One influential theory, the dopaminergic theory of positive affect Ashby et al. Ashby and colleagues extrapolated from the literature on the neural substrates of reward processing to propose that the psychological effects of positive emotion are specifically linked to increased dopamine DA release via the substantia nigra and ventral tegmental area in these states. The particular cognitive effects of increased DA release during positive affect were postulated to occur through mesocorticolimbic system projections to the anterior cingulate cortex ACC and substantia nigra projections to striatum, with increased DA facilitating the ability of ACC and striatum to initiate a switch among active task sets, rules, or goal representations maintained in lateral prefrontal cortex PFC. This facilitation of switching among task-set representations under positive affect enables unusual or non-dominant sets to become active with a greater probability than under neutral affect conditions, which then facilitates creative problem-solving. In connectionist simulations, the account was tested and exhibited an ability to account for certain behavioral performance patterns observed by Isen and colleagues under positive affect manipulations i. Dreisbach and Goschke , Dreisbach , and Muller et al. Specifically, Dreisbach proposed that changes in dopamine activity triggered by positive affect lead to a shift in the balance between cognitive stability and cognitive flexibility, by increasing the tendency to update to new task goal representations and decreasing the tendency to perseverate in maintaining old ones. Empirical evidence from performance in set-shifting and context maintenance paradigms was consistent with this hypothesis, demonstrating positive affect induced facilitation of performance under conditions that depended on flexibility, but impairment under conditions stressing maintenance Dreisbach and Goschke, ; Dreisbach, A separate theoretical account, put forward by Gray and Gray and Braver , argued for a hemispherically specialized basis of interactions between positive affect and cognitive control. In this account, an important congruence is noted between prior affective research associating positive emotions with increased activity in the left frontal cortex Davidson et al. The primary theoretical claim of the account is that different affective states positive versus negative should trigger associated behavioral goals in working memory, and that it is adaptive for these goals to be hemispherically segregated such that they can be selectively prioritized by the appropriate affective state. Thus, the theory postulates that positive affect states should selectively facilitate verbal working memory â€” a hypothesis that was confirmed experimentally Gray, Nevertheless, this account is agnostic about why positive and negative affect would be selectively linked with particular stimulus modalities in working memory. In summary, theoretical accounts of the effect of positive emotion on cognition have tended to emphasize influences on cognitive flexibility, potentially by enhancing updating of goal information in working memory. Although most work has emphasized the adaptive value of such influences, it has also been suggested to come at a cost to goal maintenance. At the level of neural mechanisms, the focus has been on the dopamine system and PFC, which, as is discussed next, has strong parallels to theoretical accounts regarding how motivation might modulate cognitive control. Reward Motivation and Cognitive Control Theoretical accounts of motivation suggest a strong linkage to cognitive control Simon, ; Carver and Scheier, ; Kruglanski et al. Although early motivational theories suggested a general drive or energization function for motivation Miller, ; Hull, ; Duffy, , information processing accounts of higher-level cognition have instead emphasized that motivational signals

may play a more focused role in the prioritization, updating, and termination of goal representations that provide hierarchical control of behavior Simon, Over the last 20 years, the intrinsic relationship between motivation and goals has been a central focus of researchers primarily working within the social and individual differences tradition, based on the central claim that motivations are expressed primarily as the activation and representation of specific cognitive and behavioral goals over others Kruglanski et al. In particular, Aarts et al. More recently, psychological theories postulating the role of motivation in activating goals and guiding behavior have begun to be bridged with neuroscience-based studies to more clearly specify the mechanisms by which motivation might influence cognitive control. A primary focus of neuroscience studies on motivation and cognitive control has been to demonstrate that these two processes are integrated within specific brain regions, such as the lateral PFC. Early work involving single-unit recording in primates demonstrated that task-related neuronal activity in PFC was modulated by the expected reward value associated with performance Watanabe, ; Leon and Shadlen, ; Watanabe et al. In one compelling demonstration, it was found that reward value directly enhanced the fidelity of active maintenance in working memory Leon and Shadlen, More recent fMRI studies carried out in humans have used designs that orthogonally manipulate cognitive control demand and motivational value across a range of task domains, including working memory Pochon et al. These studies have confirmed the presence of specific regions within lateral PFC along with effects in other associated regions, such as the ACC that are sensitive to the interaction of the two factors, consistent with a specific role in integrating motivational and cognitive control functions. The DA system also plays a central role in accounts of both motivation and cognitive control. Dopamine has long been thought to be a critical component of motivation and reward processing Wise and Rompre, ; Mirenowicz and Schultz, ; Robbins and Everitt, ; Schultz, More recent accounts have suggested that DA shows phasic, cue-triggered responses to specific events that indicate reward availability Montague et al. This signal, particularly when a reward is different from anticipated i. While the role of dopamine as a learning versus salience signal in reward has been debated Berridge, , both kinds of accounts are compatible with the idea of phasic DA involvement in processing motivational incentives and thus consistent with our account. Additionally, a separate theoretical account has emphasized that the motivational utility of the current environmental context might be reflected in tonic, rather than phasic, DA activation Niv et al. Together, these accounts suggest DA activity will be increased both by transient cues and sustained contexts that indicate high reward or motivational value. It is worth noting a completely separate literature focused on the influence of DA release within PFC, which suggests that the DA system provides modulatory role on cognitive control functions. Neurophysiological studies in primates show that application of DA into PFC sharpens actively maintained stimulus representations Sawaguchi et al. In contrast, DA antagonists reduce both active maintenance related PFC activity, and also cause behavioral impairments in working memory and cognitive control tasks Sawaguchi et al. Similar effects have been observed in human pharmacological and fMRI studies, with DA agonists administered systemically being associated with improvements in working memory and cognitive control, and leading to associated modulations of PFC activity Kimberg et al.

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Chapter 4 : ä¸-å•¤ Cognitive Perspectives on Emotion and Motivation ãƒ•ãƒ¼ãƒ‰ã‚«ãƒ•ãƒ¼ blog.quintoap

Cognitive Perspectives on Emotion and Motivation edited by Vernon Hamilton University of Reading, U.K. Gordon H. Bower Stanford University, U.S.A. and.

Find articles by Laura D. Warren Find articles by Stacie L. Infantolino Find articles by Zachary P. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in other forums, provided the original authors and source are credited and subject to any copyright notices concerning any third-party graphics etc. This article has been cited by other articles in PMC. Abstract Emotion-cognition and motivation-cognition relationships and related brain mechanisms are receiving increasing attention in the clinical research literature as a means of understanding diverse types of psychopathology and improving biological and psychological treatments. This paper reviews and integrates some of the growing evidence for cognitive biases and deficits in depression and anxiety, how these disruptions interact with emotional and motivational processes, and what brain mechanisms appear to be involved. This integration sets the stage for understanding the role of neuroplasticity in implementing change in cognitive, emotional, and motivational processes in psychopathology as a function of intervention. This body of literature has come to appreciate the intimate and closely interacting nature of these processes and is expanding to understand the relationships between motivational and cognitive processes Spielberg et al. Similar to cognition and emotion, emotion and motivation are related constructs but are not identical for further discussion, see Chiew and Braver, Although emotions and motivations both have a hedonic component, motivations are typically conceptualized as processes that drive goal-directed behaviors aimed at achieving desired outcomes and avoiding undesired ones Carver, ; Roseman, These psychological processes are implemented via both shared and distinct brain regions. Carver proposed that emotion is the affect that emerges from comparing the actual versus expected progress toward a goal, whereas motivation is what drives progress toward that goal. When there is a mismatch between actual and expected progress, changes in emotional states occur and alter subsequent motivations, impeding or promoting goal attainment. Further, changes in motivation may modify expectations about future events, which can then result in changes in emotions. Accumulating evidence demonstrates that performance on tasks commonly considered nonemotional can be influenced by emotional and motivational states, more enduring emotion- and motivation-related traits, and the emotional qualities of situations. Cognitive processing is also an integral part of emotion and motivation and affects the degree to which they influence ongoing activities and behaviors. It has become increasingly clear that cognition, emotion, and motivation are intricately intertwined, and it is difficult to determine where to draw the line between them Pessoa, , ; Miller, Complex relationships among these psychological processes appear to play an important role in the development and maintenance of psychopathology and in treatment effectiveness. As demonstrated below, a review of the cognitive difficulties experienced by individuals with anxiety and depression makes clear that it is virtually impossible to separate these difficulties from their emotional and motivational influences. Conversely, the emotional and motivational disruptions that are characteristic of anxiety and depression are embedded in abnormal cognitions, as has been well established for some time e. Recent years have also seen advances in elucidating the functional and structural brain mechanisms that support the effects of emotion and motivation on cognition and vice versa for reviews, see Gray, ; Phelps, ; Pessoa, , ; Chiew and Braver, ; Dolcos et al. Growing sophistication in theory and methodological approaches has led to empirical evidence suggesting that these processes are not only interdependent but effectively integrated in at least some areas of the brain e. These networks include prefrontal cortex PFC , cingulate, amygdala, striatum, hypothalamus, hippocampus, insula, and parietal regions. Despite a growing body of research on this topic, much work remains to be done, especially to advance concepts and theories to guide the work Miller, , There continues to be enormous but unrealized potential to apply these findings to psychopathology and treatment Miller et al. A better

understanding of the psychological and neural mechanisms involved in the complex relationships between cognition, emotion, and motivation can aid in advancing the development of such new applications. The goals of this paper are 1 to integrate findings of studies exploring relationships between cognitive, emotional, and motivational processes, and their associated neural mechanisms in anxiety and depression and 2 to highlight psychological and biological processes implicated in emotion-cognition and motivation-cognition interactions that are amenable to ongoing modification and can be targeted with interventions. Thus, this review will convey the current state of the field and highlight the potential synergy between basic and treatment-related research that can move the field forward. In the present review, neuroplasticity refers to functional and structural flexibility of brain systems, regions, and structures over time, such that a given system is able to change in response to input which may include experience or other interventions and does not harden into rigidity with maturation. In some cases a functional change might reflect alterations in dynamic neural processes as inferred by modifications in activity and metabolism or other aspects of physiology. In such cases there is no presumption that the altered physiology directly influences or reflects change in the structure of the neural tissue. The present review will focus on anxiety and depression, but manifestations of other types of psychopathology are also highly dependent on emotion-cognition and motivation-cognition interactions. For example, the clinical picture of schizophrenia is influenced significantly by emotional adjustment, motivational dynamics e. Explication of the dynamics of emotion-cognition and motivation-cognition processes in anxiety and depression may contribute to understanding similar dynamics in other disorders. Emotion-cognition interactions in anxiety and depression Emotion-cognition interactions gone awry can lead to clinically significant levels of anxiety and depression. A pervasive finding in the anxiety literature is that anxious individuals exhibit an attentional bias, such that they preferentially process threat-related information for reviews, see McNally, ; Bar-Haim et al. Anxious individuals display facilitated orientation toward threatening stimuli and have difficulty disengaging from it once their attention is captured for reviews, see Cisler et al. This attentional bias appears to play a key role in the etiology and maintenance of anxiety disorders MacLeod et al. There is also some evidence that depressed individuals exhibit an attentional bias to negative material, though this literature is mixed for reviews, see Levin et al. When biased attention has been found in depression, it has often been the case that stimuli were presented for relatively longer durations e. Williams and colleagues proposed that the attentional biases for threat observed in studies of anxiety reflect earlier stages of processing e. However, some scalp event-related brain potential ERP findings have indicated a bias to attend to negative words as early as ms post stimulus onset, as well as later enhanced processing in depression with comorbid anxiety Sass et al. Thus, evidence suggests that impairments in control of attention, particularly in the face of distracting emotional information, characterize both depression and anxiety, although potentially in different ways or on different time scales. Hemodynamic neuroimaging work examining the successful implementation of control of attention in the context of emotional distractors has implicated several key areas, including dorsolateral prefrontal cortex DLPFC and anterior cingulate cortex ACC; Whalen et al. Additionally, various parts of the parietal cortex play a role in control of attention in both emotional and nonemotional contexts Banich et al. Together, these findings suggest that anxiety and depression are associated with abnormal cognition in the presence of emotional distractors, from earlier selective attention to later inhibition and response selection. There is ample evidence that anxious individuals also exhibit an interpretation bias, in which ambiguous information and situations are interpreted negatively Mathews and MacLeod, ; Zinbarg and Yoon, This bias is supported by two fMRI findings for a review, see Bishop, First, responsivity of the amygdala to neutral stimuli increases as a function of anxiety, suggesting that anxious individuals overinterpret such stimuli as threatening Somerville et al. Second, PFC is engaged when healthy individuals attempt to decrease the impact of negative information via emotion-regulation strategies, including generating new interpretations of situations. Individuals with anxiety exhibit decreased PFC recruitment during such tasks, suggesting that they have difficulty generating alternative meanings of such stimuli in order to alter their initial and ongoing emotional response Goldin et al. This interpretation bias

appears to play a causal role in anxiety and can lead to distortions in memory Wilson et al. It is unclear whether depression is also associated with an interpretation bias, given mixed results in the literature for discussion, see Gotlib and Joormann, However, there is consistent evidence that depression is characterized by a memory bias, such that depressed individuals preferentially recall negative over positive information for review, see Mathews and MacLeod, ; Gotlib and Joormann, Depressed individuals also tend to retrieve overgeneral autobiographical memories that lack details, even when they are instructed to recall specific events Williams et al. Consistent with these findings, hypoactivation of the hippocampus and parahippocampal gyrus has been observed in individuals diagnosed with major depressive disorder MDD during an autobiographical memory task Young et al. Given deficits in DLPFC activation in depressed individuals, difficulty implementing strategies to recall detailed memories may be related to impaired connectivity between PFC and hippocampal regions. Overgeneral memory recall has been associated with longer depressive episodes Raes et al. Executive function deficits in anxiety and depression Anxiety and depression have been associated with deficits in executive function EF; Levin et al. Examples of EFs include planning and organizing, sequencing steps to accomplish a task, inhibiting prepotent responses, updating and manipulating information in working memory, shifting between strategies or tasks, and flexibly adjusting behavior to environmental demands. A pervasive view in the literature is that the EF deficits that characterize anxiety and depression are due to the symptoms of psychopathology e. However, others have asserted that these deficits are not simply the result of current symptoms, and several studies have demonstrated that individuals in remission from depression still exhibit various EF deficits Beats et al. Given that executive dysfunction persists even when symptoms improve, it is plausible that these EF deficits contribute to initial onset or relapse, rather than merely resulting from disorder. There is evidence that anxiety is associated with deficits in shifting between mental sets Airaksinen et al. In addition, anxiety has been linked to working memory problems MacLeod and Donnelan, ; Derakshan and Eysenck, ; Eysenck et al. An influential proposal, the attentional control theory, considers anxiety in relation to three EF componentsâ€”inhibition, shifting, and updating of working memoryâ€”based on a model proposed by Miyake and colleagues This theory proposes that anxiety is characterized by an EF deficit in control of attention due to worry impairing the central executive of the working memory system Eysenck et al. This impairment is accompanied by deficits in inhibition and shifting functions, as well as an imbalance in two attention systems. Specifically, anxiety decreases the influence of a goal-directed, top-down attention system and increases the influence of a stimulus-driven, bottom-up attention system. Little work has been conducted thus far investigating key aspects of this theory, but some support of its assertions is starting to accrue for reviews, see Derakshan and Eysenck, ; Eysenck and Derakshan, ; Snyder et al. Using the three-component EF model developed by Miyake and colleagues , Warren et al. Whereas anxious apprehension was associated with shifting impairments only, anxious arousal was associated with broad impairments in EF shifting, updating, and inhibition , especially updating and inhibition. These findings are generally consistent with Eysenck et al. Deficits in inhibition appear to be associated with the difficulties that depressed individuals have disengaging from mood-congruent negative information, which leads to further elaboration of the negative information and contributes to the attentional bias described above for a review, see Gotlib and Joormann, Some evidence suggests that this effect is valence-specific, such that depressed individuals demonstrate inhibition deficits selectively for negative information e. In addition, depressed individuals have difficulty intentionally ignoring distracting information, whether it is emotional or nonemotional in nature Gotlib and Joormann, ; Snyder, Depression therefore appears to be associated with an increased vulnerability to distracting information, but once attention has been captured, difficulties in disengaging are specific to information with negative valence. Depression-related difficulty disengaging from information also appears to be related to deficits in other cognitive control mechanisms, specifically updating and removing previous task-relevant information, both emotional and nonemotional in nature, from working memory and flexibly switching attention to the task at hand Joormann and Gotlib, ; Banich et al. These deficits likely also contribute to prolonged processing of

negative aspects of stimuli, which in turn hinders emotion regulation processes and leads to the sustained negative affect and rumination observed during depressive episodes Joormann, Further, depression has been associated with a variety of other EF deficits, including impairments in verbal fluency, verbal and visuospatial working memory, and planning for reviews, see Yee, ; Levin et al. Studies of healthy individuals have consistently implicated several subregions of PFC across a variety of EFs. Depression and anxiety have both been associated with hypoactivation in these regions Rogers et al. Impaired recruitment of PFC regions appears to be associated with difficulty implementing various functions associated with EF tasks, including maintaining task goals and goal-related information. Specifically, comorbid anxious arousal and depression were associated with reduced left DLPFC activity during an EF task, but only when anxious apprehension was low Engels et al. Motivation-cognition interactions in anxiety and depression Numerous behavioral and psychophysiological studies have provided evidence that depression is associated with motivation-related deficits. These are reflected in decreased responsivity to positive or rewarding stimuli and reduced approach-related behaviors for reviews, see Fernandes and Miller, ; Pizzagalli et al. Relative to healthy controls, individuals with MDD exhibit blunted responsiveness to pleasant films and scenes Berenbaum and Oltmanns, ; Sloan et al. Depressed individuals also fail to demonstrate the bias toward attending and responding to positive and rewarding stimuli that nondepressed controls show McCabe and Gotlib, ; Pizzagalli et al. Hemodynamic neuroimaging studies of reward tasks have demonstrated that depression is associated with decreased activation in key brain areas associated with the processing of reward-related information, specifically nucleus accumbens and caudate, as well as decreased activation in left PFC, an area that has been associated with approach-related motivation and the processing of positive stimuli Davidson and Henriques, ; Herrington et al. Decreased activation in striatal areas has been found during both anticipatory and consummatory phases of reward processing Pizzagalli et al. Other brain areas display abnormally increased activation in relation to reward processing in depression, including orbitofrontal cortex OFC , implicated in the assessment of risk and reward, and dACC, implicated in predicting response value Knutson et al. In addition to deficits in processing reward and decreased approach behavior, depression appears to be associated with increased avoidance behavior and an enhanced sensitivity to negative cues and punishment, consistent with a bias toward negative information as reviewed above see also Pizzagalli et al. Furthermore, depressed individuals exhibit abnormal responses to errors and perceived failure and demonstrate problems adjusting their behavior appropriately after making mistakes and receiving negative feedback Elliott et al. Studies examining brain activation in relation to the anticipation of and response to negative cues, feedback, and making errors have found hyperactivity in several areas associated with threat-related processing, including amygdala, ACC, and medial PFC mPFC along with hypoactivity in lateral PFC Tucker et al. Anxious individuals appear to be hypersensitive to negative or punishment-related stimuli, consistent with being prone to interpret information as threatening for reviews, see Gray, , ; Sass et al. Further, anxious individuals exhibit increased activation in threat-related brain regions when responding to negative stimuli, including PFC, dACC, amygdala, and parietal and temporal areas Heller et al. Similar to depression, anxiety is associated with enhanced avoidance motivation Spielberg et al. The tendency for anxious individuals to engage in risk-avoidant behavior is due in part to exaggerated perceptions of the likelihood and cost of negative outcomes Maner and Schmidt,

Chapter 5 : The Cognitive Perspective, Including Definition and Example

The cognitive theories of motivation include the Expectancy Theory and the Goal-Setting Theory. The Expectancy Theory of Motivation explains why and how an individual chooses one behavioural option over others.

Introduction[edit] Happiness, sadness, anger, surprise, disgust and fear. All these words describe some kind of abstract inner states in humans, in some cases difficult to control. We usually call them feelings or emotions. But what is the reason that we are able to "feel"? Where do emotions come from and how are they caused? And are emotions and feelings the same thing? Or are we supposed to differentiate? These are all questions that cognitive psychology deals with in emotion research. Emotion research in the cognitive science is not much older than twenty years. The reason for this lies perhaps in the fact that much of the cognitive psychology tradition was based on computer-inspired information-processing models of cognition. This chapter gives an overview about the topic for a better understanding of motivation and emotions. It provides information about theories concerning the cause of motivation and emotions in the human brain, their processes, their role in the human body and the connection between the two topics. We will try to show the actual state of research, some examples of psychologist experiments, and different points of view in the issue of emotions. In the end we will briefly outline some disorders to emphasize the importance of emotions for the social interaction. Motivation[edit] About Drives and Motives[edit] Motivation is an extended notion, which refers to the starting, controlling and upholding of corporal and mental activities. It is declared by inner processes and variables which are used to explain behavioral changes. Motivations are commonly separated into two types: Motivation is an interceding variable, which means that it is a variable that is not directly observable. Therefore, in order to study motivation, one must approach it through variables which are measurable and observable: There are two major methodologies used to manipulate drives and motives in experiments: Initiating motives by aversive attractions like shocks, loud noise, heat or coldness. On the other side attractions can activate drives which lead to positive affective states, e. As a result it leads it to motives or drives which are not common for this species under normal conditions. He considered two kinds of motivation: Maslow argues that everyone has a hierarchy of needs see picture. The hypothesis is that the human is ruled by lower needs as long as they are not satisfied. If they are satisfied in an adequate manner, the human then deals with higher needs. These people may be the exceptions to this hypothesis, but they may also have some other, more pressing motives or drives which induce them to behave in this way. It seems that individuals are able to resist certain motives via personal cognitive states. The ability of cognitive reasoning and willing is a typical feature of being human and can be the reason for many psychological diseases which indicates that humans are not always capable to handle all rising mental states. Humans are able to manipulate their motives without knowing the real emotional and psychological causes. This introduces the problem that the entity of consciousness , unconsciousness and what ever else could be taken into account is essentially unknown. Neuroscience cannot yet provide a concrete explanation for the neurological substructures of motives, but there has been considerable progress in understanding the neurological procedures of drives. The Neurological Regulation of Drives[edit] The Role of the Hypothalamus[edit] The purpose of drives is to correct disturbances of homeostasis which is controlled by the hypothalamus. Deviations from the optimal range of a regulated parameter like temperature are detected by neurons concentrated in the periventricular zone of the hypothalamus. These neurons then produce an integrated response to bring the parameter back to its optimal value. This response generally consists of 1. Somatic motor response When you are dehydrated, freezing, or exhausted, the appropriate humoral and visceromotor responses are activated automatically, [3] e. These are examples of drives generated by the somatic motor system, and they are incited to emerge by the activity of the lateral hypothalamus. For illustration we will make a brief overview on the neural basis of the regulation of feeding behavior, which is divided into the long-term and the short-term regulation of feeding behavior. The long-term regulation of feeding behavior prevents energy shortfalls and concerns the regulation

of body fat and feeding. This theory developed from the facts that bilateral lesions of the lateral hypothalamus causes anorexia, a severely diminished appetite for food lateral hypothalamic syndrome and on the other side bilateral lesions of the ventromedial hypothalamus causes overeating and obesity ventromedial hypothalamic syndrome. The reason why hypothalamic lesions affect body fat and feeding behavior has in fact much to do with leptin signaling. Adipocytes fat cells release the hormone leptin, which regulates body mass by acting directly on neurons of the arcuate nucleus [4] of the hypothalamus that decreases appetite and increase energy expenditure. A fall in leptin levels stimulates another type of arcuate nuleus neurons [5] and neurons in the lateral hypothalamus, [6] which activate the parasympathetic division of the ANS, and stimulate feeding behavior. The short-term regulation of feeding behavior deals with appetite and satiety. Until scientists believed that hunger was merely the absence of satiety. This changed with the discovery of a peptide called ghrelin, which is highly concentrated in the stomach and is released into the bloodstream when the stomach is empty. In the arcuate nucleus it activates neurons, [7] that strongly stimulate appetite and food consumption. The meal finally ends by the concerted actions of several satiety signals, like gastric distension and the release of insulin. They also eat because they like food in a merely hedonistic sense. The Role of Dopamine in Motivation[edit] In the early s, Peter Milner and James Olds conducted an experiment in which a rat had an electrode implanted in its brain, so the brain could be locally stimulated at any time. The rat was seated in a box, which contained a lever for food and water and a lever that would deliver a brief stimulus to the brain when stepped on. At the beginning the rat wandered about the box and stepped on the levers by accident, but before long it was pressing the lever for the brief stimulus repeatedly. This behavior is called electrical self-stimulation. Sometimes the rats would become so involved in pressing the lever that they would forget about food and water, stopping only after collapsing from exhaustion. Electrical self-stimulation apparently provided a reward that reinforced the habit to press the lever. Researches were able to identify the most effective sites for self-stimulation in the different regions of the brain: Drugs that block dopamine receptors reduced the self-stimulation behavior of the rat. In the same way this drugs greatly reduced the pressing of a lever for receiving of food even if the rat was hungry. These experiments suggested a mechanism by which natural rewards food, water, sex reinforce particular behavior. Dopamine plays an important role in addiction of drugs like heroin, nicotine and cocaine. Thus these drugs either stimulate dopamine release heroin, nicotine or enhance dopamine actions cocaine in the nucleus accumbens. This adaption leads to the phenomenon of drug tolerance. Indeed, drug discontinuation in addicted animals is accompanied by a marked decrease in dopamine release and function in the nucleus accumbens, leading to the symptom of craving for the discontinued drug. The exact role of dopamine in motivating behavior continues to be debated. However, much evidence suggests that animals are motivated to perform behaviors that stimulate dopamine release in the nucleus accumbens and related structures Basics[edit] In contrast to previous research, modern brain based neuroscience has taken a more serviceable approach to the field of Emotions , because emotions definitely are brain related processes which deserve scientific study, whatever their purpose may be. It is important to distinguish between conscious aspects of emotion like subjective - often bodily - feelings, as well as unconscious aspects like the detection of a threat. This will be discussed later on in conjunction with awareness of emotion. It is also important to differentiate between a mood and an emotion. A mood refers to a situation where an emotion occurs frequently or continuously. Fear is an emotion, anxiety is a mood. The first question which arises is how to categorise emotions. One of the most influential ethnographic studies by Eckman and Friesen, which is based on the comparison of facial expressions of emotions in different cultures, concluded that there are six basic types of emotions expressed in faces - namely sadness, happiness, disgust, surprise, anger and fear, independent from culture and language. An alternative approach is to differentiate between emotions not by categorising but rather by measuring the intensity of an emotion by imposing different dimensions, e. If this theory would be true then one might expect to find different brain regions which selectivey process positive or negative emotions. Hence they come along with a more complex attributional process which is required to appreciate thoughts and beliefs of other people. Complex emotions

are more likely be dependent on cultural influences than basic types of emotions. If you think of Knut who is feeling embarrassment, you have to consider what kind of action he committed in which situation and how this action raised the disapproval of other people. Awareness and Emotion[edit] Awareness is closely connected with changes in the environment or in the psycho-physiological state. Why recognise changes rather than stable states? An answer could be that changes are an important indicator of our situation. They show that our situation is unstable. Paying attention or focusing on that might increase the chance to survive. A change bears more information than repetitive events. This appears more exciting. If we think that we got the most important information from a situation or an event,we become unaware of such an event or certain facts. Current research in this field suggest that changes are needed to emerge emotions,so we can say that it is strong attention dependent. The event has to draw our attention. No recognition, no emotions. But do we have always an emotional evaluation, when we are aware of certain events? How has the change to be relevant for our recognition? Emotional changes are highly personal significant, saying that it needs a relation to our personal self. Significance presupposes order and relations. Relations are to meaning as colours are to vision: One determines the significance and the scope of a change by f. We feel no emotion in response to change which we perceive as unimportant or unrelated. Roughly one can say that emotions express our attitude toward unstable significant objects which are somehow related to us. This is also always connected with the fact that we have greater response to novel experience.

Chapter 6 : Motivation and Emotion

This book presents the contributions of the members of an Advanced Research Workshop on Cogni ti ve Science Perspectives on Emotion, Motivation and Cognition. The Workshop, funded mainly by the NATO Scientific Affairs Division, together with a contribution from the (British) Economic and Social.

Chapter 7 : Positive Affect Versus Reward: Emotional and Motivational Influences on Cognitive Control

Motivation, emotion, and cognition: integrative perspectives on intellectual development and functioning / edited by David Yun Dai and Robert J. Sternberg. p. cm.

Chapter 8 : Motivation and Emotion | General Psychology

Emotion-cognition and motivation-cognition relationships and related brain mechanisms are receiving increasing attention in the clinical research literature as a means of understanding diverse types of psychopathology and improving biological and psychological treatments. This paper reviews and.