Kognitionspsychologie II: Session 11

Wrap-up and Q&A

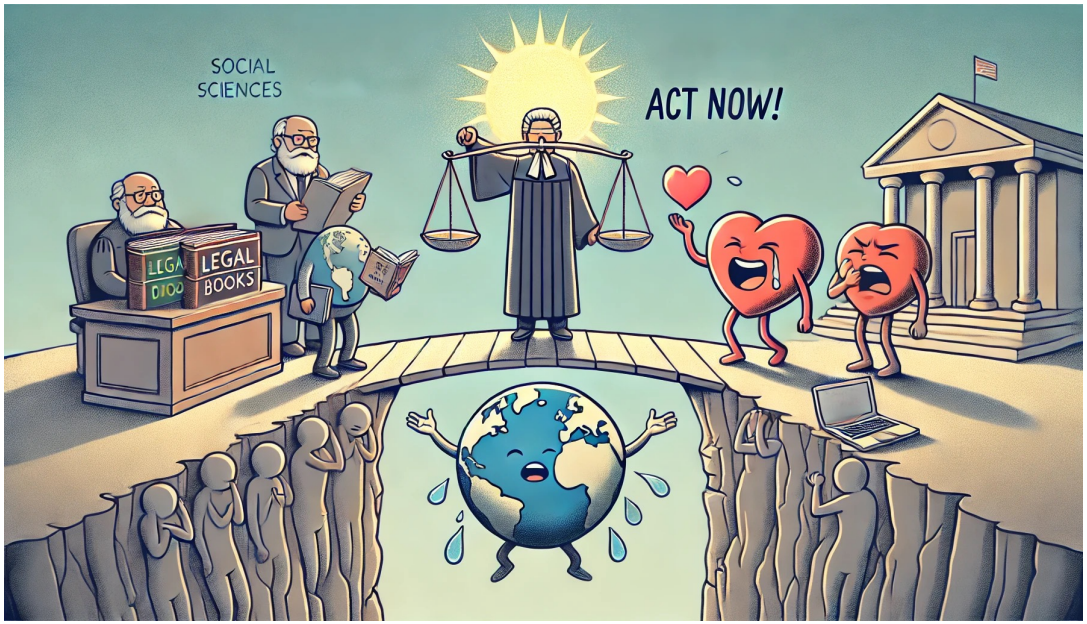
Rui Mata, FS 2025

Version: May 20, 2025

Objectives

- Wrap-up and Q&A
- Exam information
- Course evaluation

How we started: The rise of affectivism



Dukes et al. suggest that the affective sciences are reshaping key societal domains by highlighting the role of emotions in several areas. For example, legal scholars recognize how emotions influence legal decisions, while education research links emotional well-being to learning. In climate action, researchers increasingly recognize that emotions drive urgency and motivate change, and in conflict studies, emotions are seen as key forces shaping political and group behavior.

Dukes, D., Abrams, K., Adolphs, R., Ahmed, M. E., Beatty, A., Berridge, K. C., Broomhall, S., Brosch, T., Campos, J. J., Clay, Z., Clément, F., Cunningham, W. A., Damasio, A., Damasio, H., D'Arms, J., Davidson, J. W., De Gelder, B., Deonna, J., De Sousa, R., … Sander, D. (2021). The rise of affectivism. *Nature Human Behaviour, 5*(7), 816–820. https://doi.org/10.1038/s41562-021-01130-8

Your questions concerning KOGPSY II (paraphrased and selected)

Core assumptions of the four emotion perspectives

- Could you elaborate on the emotion perspectives table—experience and variability?
- Why are emotions not shared with non-human animals in the social construction view
- Are emotions distinguishable through intentionality?

		Basic	*Appraisal*	*Psychological construction*	*Social construction*
1.	Are emotions unique mental states?	Yes	Yes	No	Varies by model
2.	Are emotions caused by special mechanisms?	Yes (e.g., affect programs)	Varies by model	No (basic ingredients vary by specific model)	No
3.	Is each emotion caused by a specific brain circuit?	Yes (subcortical circuit for each emotion)	No	No (distributed brain network for each ingredient)	No
4.	Do emotions have unique manifestations (in face, voice, body state)?	Yes	Varies by model	No	No
5.	Does each emotion have a unique response tendency?	Yes	In most models	No	No
6.	Is experience a necessary feature of emotion?	Varies by model	Yes	Yes	No
7.	What is universal?	Emotions are universal	Appraisals are universal	Psychological ingredients are universal	Influence of social context is universal
8.	How important is variability in emotions?	Epiphenomenal	Varies by model	Emphasized	Present, but not central
9.	Are emotions shared with non-human animals?	Yes	Some appraisals are shared	Affect is shared	No
10.	How did the evolution shape emotions?	Specific emotions evolved	Cognitive appraisals evolved	Basic ingredients evolved	Cultural and social structure evolved

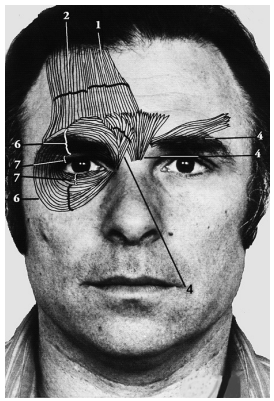
Gross, J.J, & Barrett, L.F. (2011). Emotion generation and emotion regulation: One or two depends on your point of view. *Emotion Review, 3*, 8–16.

Basic Emotions

Does Paul Ekman's model only include six emotions or can it be extended?

"Emotions are viewed as having evolved through their adaptive value in dealing with fundamental life-tasks. Each emotion has unique features: signal, physiology, and antecedent events. Each emotion also has characteristics in common with other emotions: rapid onset, short duration, unbidden occurrence, automatic appraisal, and coherence among responses. These shared and unique characteristics are the product of our evolution, and distinguish emotions from other affective phenomena."

"Most of my presentation will describe nine characteristics of the emotions of **anger, fear, sadness**, **enjoyment**, **disgust**, and **surprise**. I will also raise the possibility that contempt, shame, guilt, embarrassment, and awe may also be found to share these nine characteristics."



Paul Ekman

Characteristics which Distinguish Basic Emotions from One Another and from Other Affective Phenomena

	Basic with regard to:	
	Distinctive States	*Biological Contribution*
1. Distinctive universal signals	x	x
2. Presence in other primates		x
3. Distinctive physiology	x	x
4. Distinctive universals in antecedent events	x	x
5. Coherence among emotional response		x
6. Quick onset		x
7. Brief duration		x
8. Automatic appraisal		x
9. Unbidden occurrence		x

Ekman, P. (1992). An argument for basic emotions. ***Cognition & Emotion, 6***(3/4), 169-200. doi:10.1080/02699939208411068

Comparative approaches in the study of pain

Does there need to be evidence for long-term altered behavior following noxious stimuli or is observed altered behavior sufficient for a criteria in assessing animal pain?

Key Principles	Criteria
1. Whole animal responses that differ from innocuous stimulation	• Evidence of central processing of nociception involving brain areas that regulate motivated behaviour (including learning and fear) • Nociceptive processing sensitive to endogenous modulators (e.g. opioids in vertebrates) • Nociception activates physiological responses (change in respiration, heart rate, or hormonal levels, e.g., cortisol in some vertebrates) • Evidence that responses are not just a nociceptive reflex (i.e., not simply moving away) • Alterations in behaviour over longer term that reduce encounters with the stimulus • Protective behaviour such as wound guarding, limping, rubbing, or licking • All of the above reduced by analgesia or local anaesthetics
2. Change in motivation	• Self-administration of analgesia • Pay a cost to access analgesia • Selective attention whereby the response to the noxious stimulus has high priority over other stimuli; the animal does not respond appropriately to concurrent events (e.g., presentation of predator; reduced performance in learning and memory tasks) • Altered behaviour after noxious stimulation where changes can be observed in conditioned place avoidance and avoidance learning paradigms • Relief learning • Long-lasting change in a suite of responses, especially those relating to avoidance of repeat noxious stimulation • Avoidance of the noxious stimulus modified by other motivational requirements as in trade-offs • Evidence of paying a cost to avoid the noxious stimulus

Sneddon, L. U., Elwood, R. W., Adamo, S. A., & Leach, M. C. (2014). Defining and assessing animal pain. *Animal Behaviour, 97*, 201–212. https://doi.org/10.1016/j.anbehav.2014.09.007

Addressing issues of causality and temporality

What is the difference between temporality and causality in the context of lesion studies?
Does causality not always include temporality?

Lesion studies (e.g., Weiskrantz, 1956):

amygdala lesion

AM-61

inferior temporal lesion

IT-60

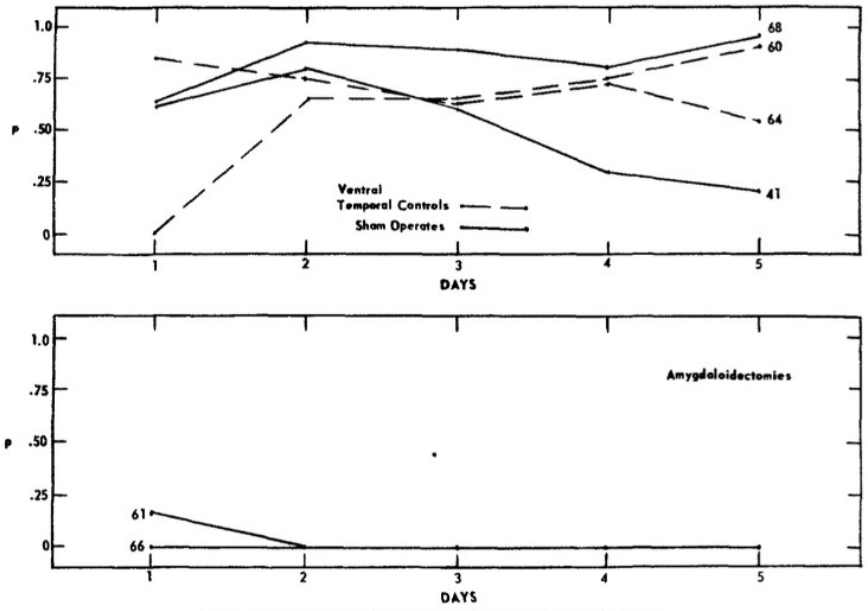


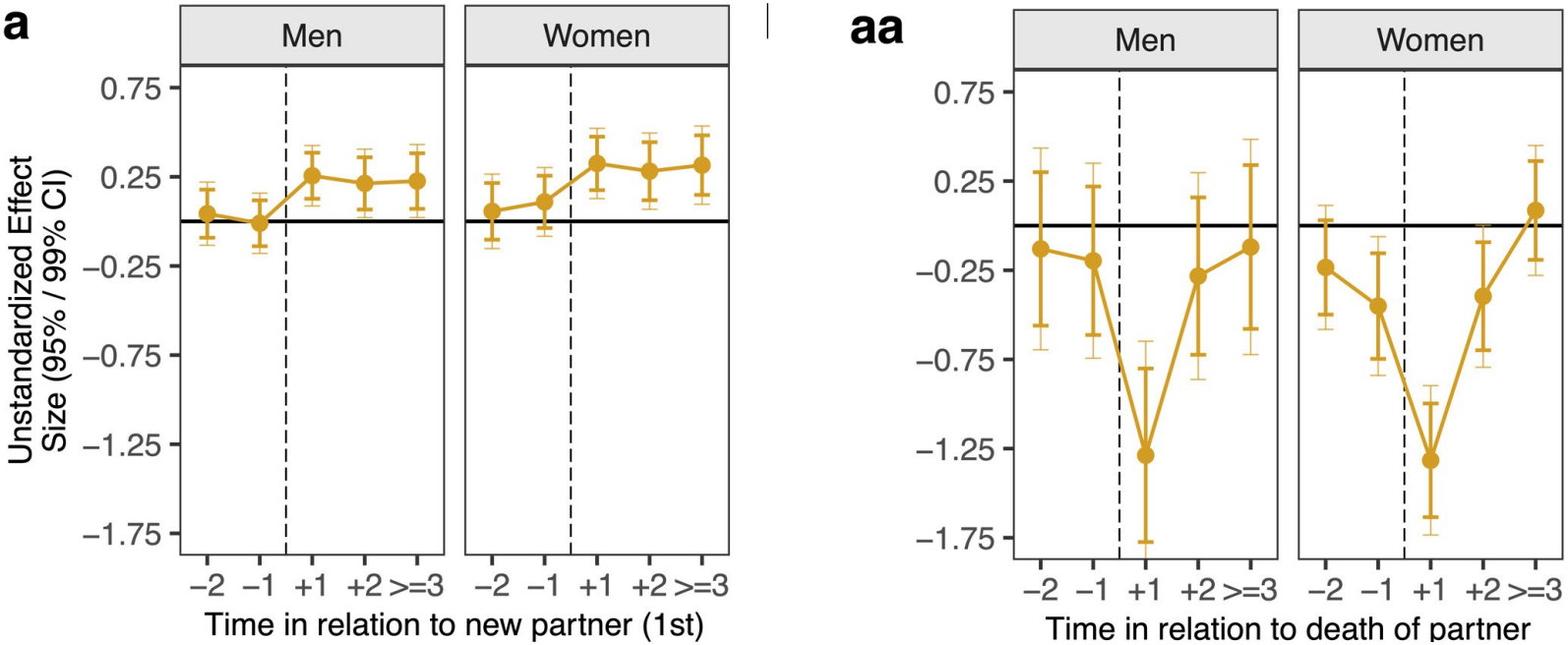
FIG. 5. Proportions of avoidance responses to experimenter.

"[…] marked increase in tameness and a weakening or disappearance of fear responses to previously aversive stimuli by amygdala [lesion] animals"

Weiskrantz, L. (1956) Behavioral changes associated with ablation of the amygdaloid complex in monkeys. *Journal of Comparative Physiology and Psychology, 49*, 381–391.

Individual differences: Life events

Explain why cognitive well-being is more affected than emotional well-being.



Longitudinal studies of the effects of life events suggest systematic effects on subjective well-being (SWB), albeit these vary significantly by event. Cognitive well-being (life satisfaction) appears more strongly and consistently affected than emotional well-being (positive/negative affect). Adaptation (regression to baseline) is often but not always observed.

Krämer, M. D., Rohrer, J. M., Lucas, R. E., & Richter, D. (2025). Life events and life satisfaction: Estimating effects of multiple life events in combined models. *European Journal of Personality, 39*(1), 3–23. https://doi.org/10.1177/08902070241231017

For a meta-analysis: Luhmann, M., Hofmann, W., Eid, M., & Lucas, R. E. (2012). Subjective well-being and adaptation to life events: A meta-analysis. *Journal of Personality and Social Psychology, 102*(3), 592–615. https://doi.org/10.1037/a0025948

The Bing Nursery Study

Why is the delay time in the abstract cognitive control object category lower than for rewards?

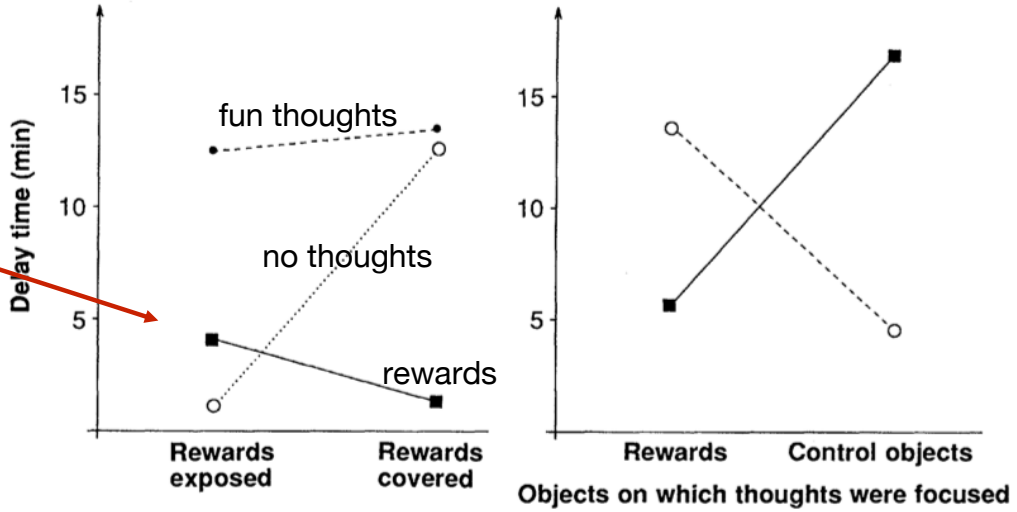


Fig. 1. (**Left**) Average delay time shown by 52 Stanford preschoolers when different types of thoughts were suggested (●, fun thoughts; ■, thoughts about the rewards; ○, no thoughts suggested) and the rewards were exposed or covered [based on figure 4 in (*20*)]. **Fig. 2.** (**Right**) Delay time as a function of objects on which thoughts were focused (rewards versus comparable control objects) and type of cognitive representation in thoughts [arousing (■) versus abstract (○)]. All 48 Stanford preschool children were facing the exposed rewards [data are from table 1 in (*30*)].

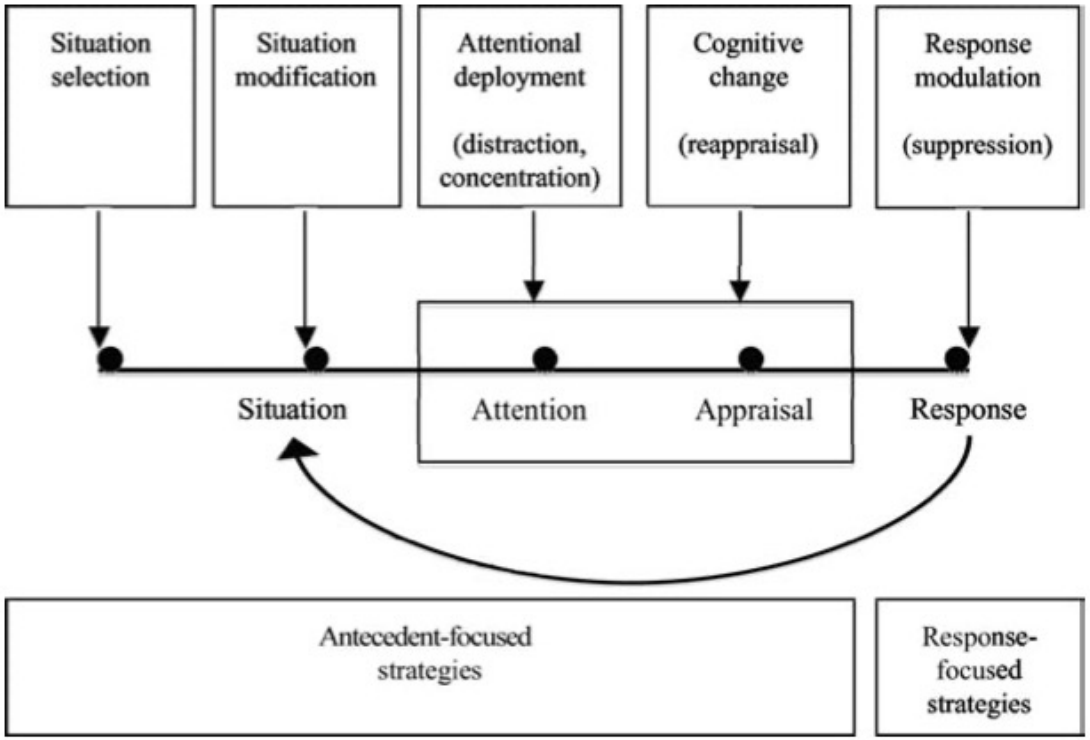
The experiment took place at the Bing Nursery School located at Stanford University, using children age four to six as subjects. The children were led into a room, empty of distractions, where a treat of their choice (Oreo cookie, marshmallow, or pretzel stick) was placed on a table.The children could eat the marshmallow, the researchers said, but if they waited for fifteen minutes without giving in to the temptation, they would be rewarded with a second marshmallow. In over 600 children who took part in the experiment, a minority ate the marshmallow immediately. Of those who attempted to delay, one third deferred gratification long enough to get the second marshmallow.

Mischel, W., Shoda, Y., & Rodriguez, M. L. (1989). Delay of gratification in children. ***Science, 244***(4907), 933–938. http://doi.org/10.2307/1704494?ref=no-x-route:282d9b4150c356d1eb92ad582d930537

Mischel, W., & Ebbesen, E. B. (1970). Attention in delay of gratification. ***Journal of Personality and Social Psychology, 16(2)***, 329–337. http://doi.org/10.1037/h0029815

Emotion regulation models and strategies

Can suppression be compared to the freeze response in animals?



Strategy	Overall *d*	*k*	95% CI *LL, UL*	χ^2
Attentional deployment	0.00	215	−0.07, 0.07	313*
Distraction: active positive (D1)	0.47	6	0.11, 0.84	2
Distraction: passive positive (D2)	0.18	10	−0.14, 0.50	7
Distraction: active neutral (D3)	0.38	20	0.21, 0.56	20
Distraction: passive neutral (D4)	0.23	66	0.12, 0.35	82
Distraction: overall	0.27	102	0.18, 0.36	119
Concentrate: feelings (C1)	−0.14	42	−0.28, −0.00	51
Concentrate: implications (C2)	−0.34	33	−0.48, −0.20	30
Concentrate: mixed (C3)	−0.36	38	−0.51, −0.21	31
Concentrate: overall	−0.26	113	−0.34, −0.18	120
Cognitive change	0.36	99	0.27, 0.45	131*
Reappraise: response (R1)	0.23	31	0.12, 0.33	29
Reappraise: stimulus (R2)	0.36	26	0.21, 0.51	28
Reappraise: perspective (R3)	0.45	36	0.30, 0.62	54*
Reappraise: mixed (R4)	0.89	6	0.24, 1.54	9
Response modulation	0.16	102	0.09, 0.24	137*
Suppress: expression (S1)	0.32	56	0.27, 0.42	69
Suppress: experience (S2)	−0.04	12	−0.21, 0.14	7
Suppress: thoughts (S3)	−0.12	20	−0.26, 0.01	17
Suppress: mixed (S4)	0.11	14	−0.05, 0.27	8

In general, antecedent-focused (some forms of attentional deployment, such as distraction, or cognitive change strategies, such as reappraisal) tend to be more effective than response-focused strategies (suppression). There is overall less work on situation selection and modification but there is some work suggesting overall positive effects (cf. Duckworth, Milkman, & Laibson, 2018).

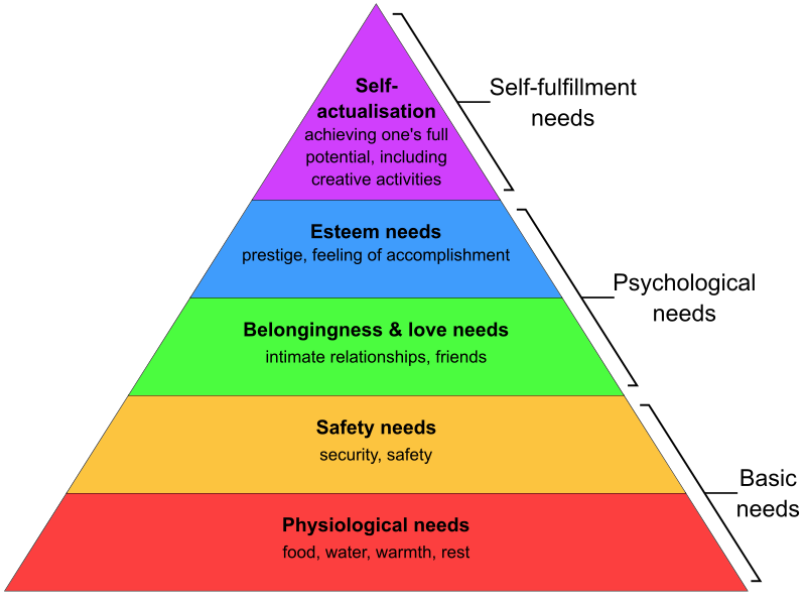
Webb, T. L., Miles, E., & Sheeran, P. (2012). Dealing with feeling: A meta-analysis of the effectiveness of strategies derived from the process model of emotion regulation. *Psychological Bulletin, 138*(4), 775–808. https://doi.org/10.1037/a0027600

Motivation theories

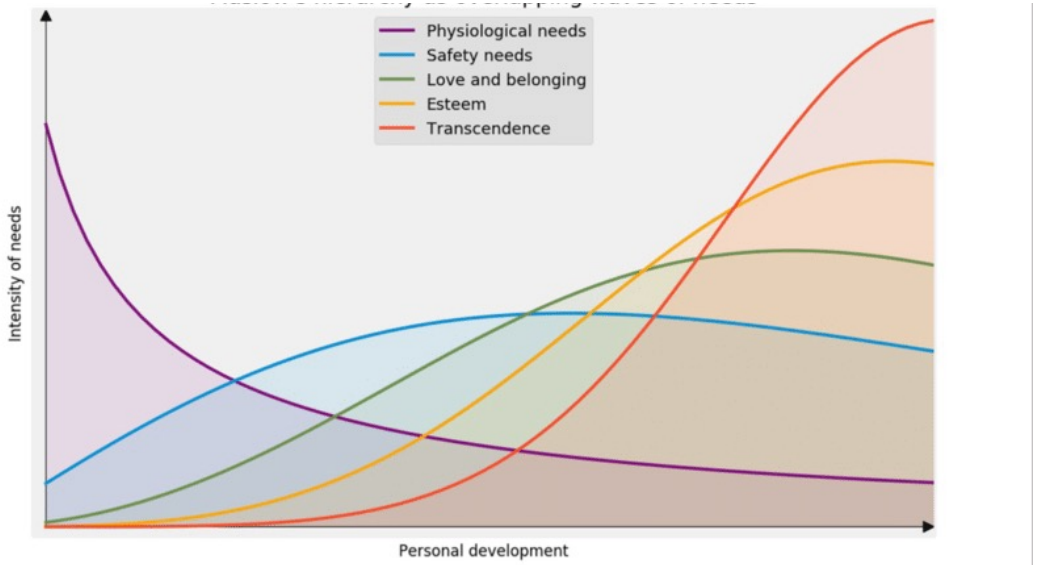
- Did Maslow say that lower needs must be fully satisfied before higher ones emerge?
- Do content-based approaches relate to evolutionary theories?

Content-based Approaches

"There are at least five sets of goals, which we may call basic needs. (…). These basic goals are related to each other, being arranged in a hierarchy of prepotency. This means that the most prepotent goal will monopolize consciousness and will tend of itself to organize the recruitment of the various capacities of the organism. The less prepotent needs are minimized, even forgotten or denied. But when a need is fairly well satisfied, the next prepotent ('higher') need emerges, in turn to dominate the conscious life and to serve as the center of organization of behavior, since gratified needs are not active motivators"



Typical depiction of Maslow's hierarchy of motives



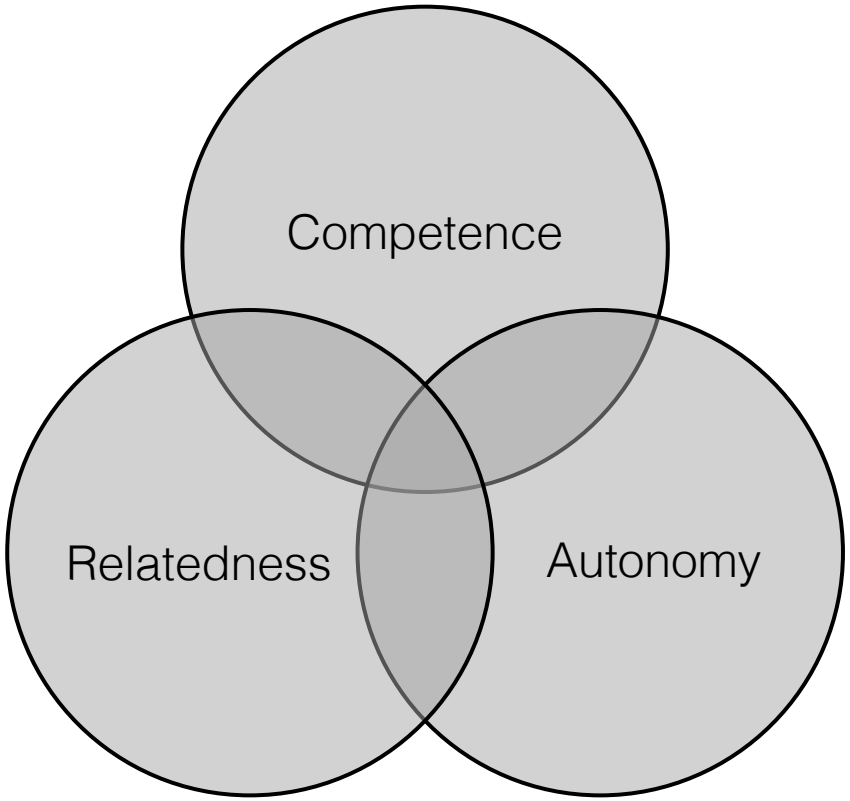
Alternative depiction of the hierarchy of motives, that suggests that that one motive does not need to be completely fulfilled to initiate another.

Maslow, A. H. (1943). A theory of human motivation. ***Psychological Review, 50***, 370–396

Self-Determination Theory

Is self-motivation synonymous with intrinsic motivation in SDT?

"The findings have led to the postulate of three innate psychological needs--competence, autonomy, and relatedness-- which when satisfied yield enhanced self-motivation and mental health and when thwarted lead to diminished motivation and well-being."



Competence

Seek to control the outcome and experience mastery[

Relatedness

Is the universal want to interact, be connected to, and experience caring for others

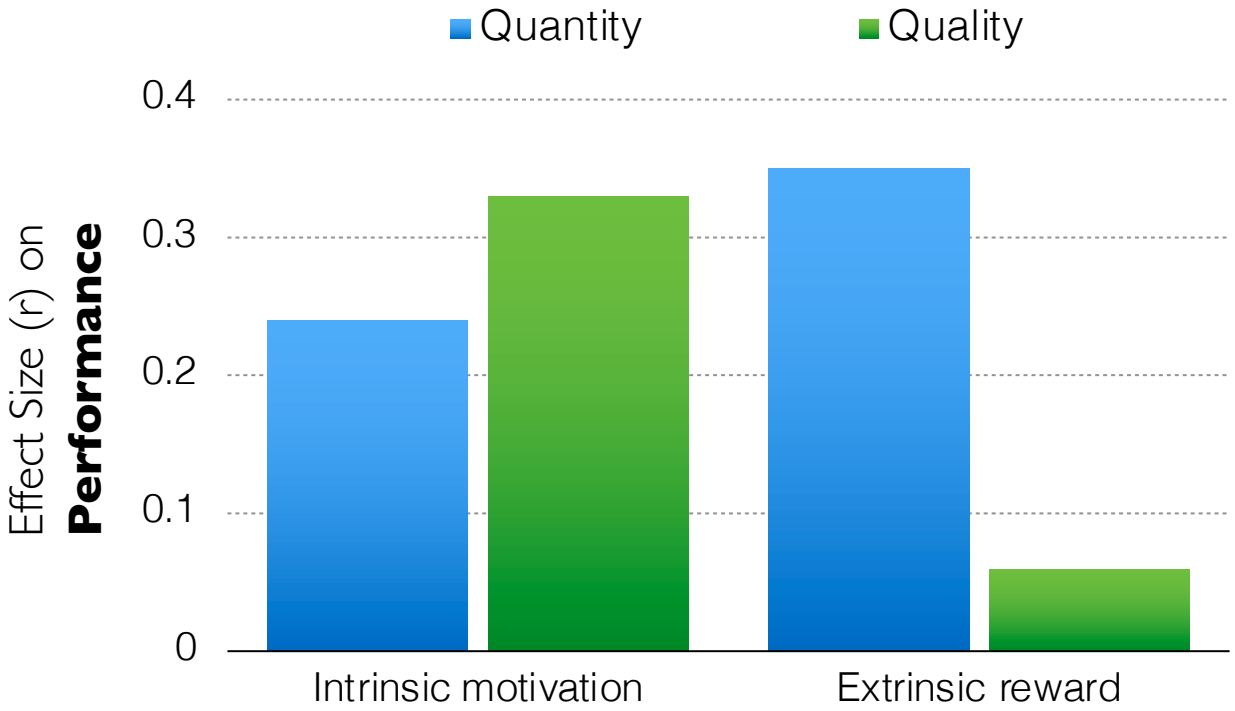
Autonomy

Is the universal urge to be causal agents of one's own life and act in harmony with one's self

Ryan, R. M. & Deci, E.L. (2000). Self determination theory and the facilitation of intrinsic motivation, social development, and well-being. ***American Psychologist, 55***, 68-78.

The role of incentives on motivation

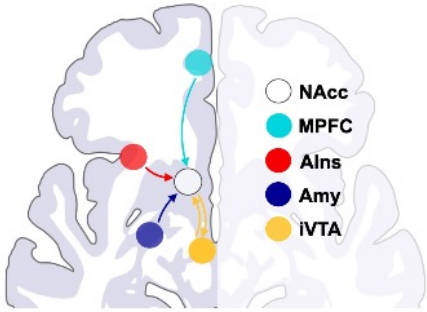
Do the findings by Cesaroli et al. contradict Mueller and Dweck's on extrinsic rewards?



Cesaroli et al.'s results can also be seen as an argument for distinguishing between types of motivation: Intrinsic motivation (as measure by self-reported motivation) has overall average positive effects on both quantity and quality of performance. Extrinsic rewards (presence vs. absence of external rewards, such as monetary payoffs) have positive effects on the quantity but less so in the quality of performance (across different task types, not only free-choice ones). It should be noted this work presents no evidence of negative effects of extrinsic rewards…

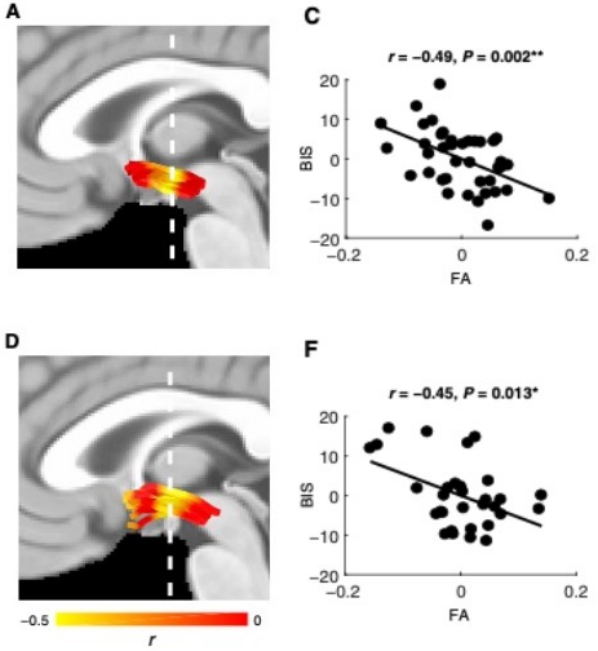
Cerasoli, C. P., Nicklin, J. M., & Ford, M. T. (2014). Intrinsic motivation and extrinsic incentives jointly predict performance: A 40-year meta-analysis. ***Psychological Bulletin, 140***(4), 980–1008.

Impulsivity versus compulsivity in human stimulant addiction



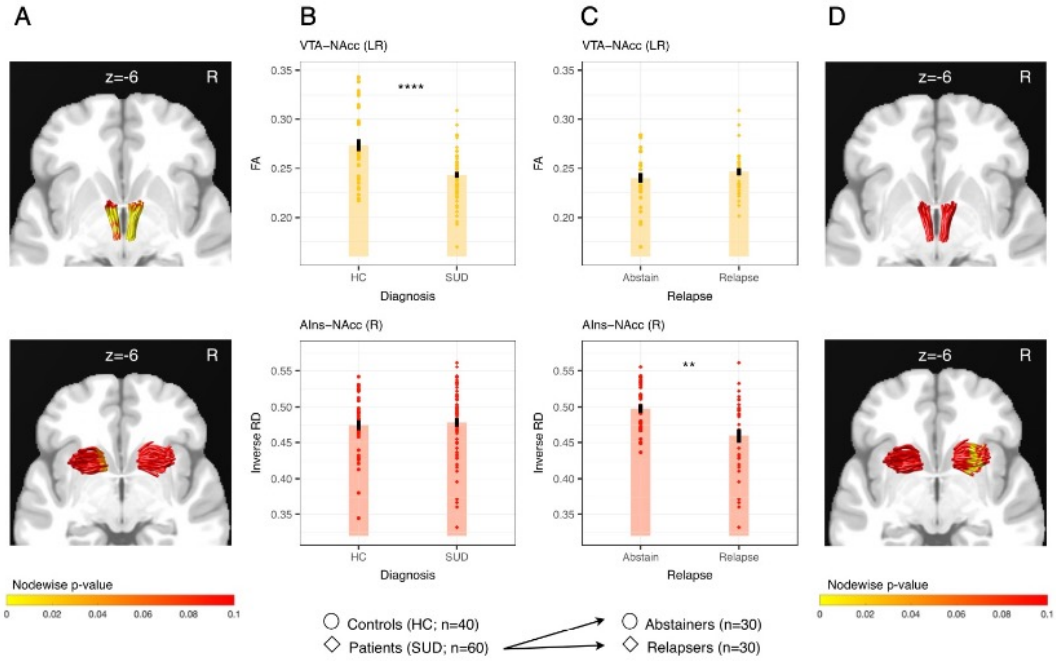
Causality in impulsivity vs compulsivity: Is impulsivity a cause for first drug use or is it a consequence of drug use?

VTA-NAcc



Diagnosis ~ Tract diffusion metric

Relapse ~ Tract diffusion metric



"[…] reduced diffusion metrics of a tract projecting from the right anterior insula to the NAcc were associated with subsequent relapse to stimulant use, but not with previous diagnosis. These findings highlight a structural target for predicting relapse to stimulant use and further suggest that distinct connections to the NAcc may confer risk for relapse versus diagnosis."

MacNiven, K. H., Leong, J. K., & Knutson, B. (2020). Medial forebrain bundle structure is linked to human impulsivity. *Science Advances, 6*(38), eaba4788.

Tisdall, L., MacNiven, K. H., Padula, C. B., Leong, J. K., & Knutson, B. (2022). Brain tract structure predicts relapse to stimulant drug use. *Proceedings of the National Academy of Sciences, 119*(26), e2116703119.

Questions about study requirements

- Do we need to know the names and definitions of all the strategies mentioned in Duckwort et al.?
- How detailed must we know terms in definitions of emotion?
- How detailed should we know biological terms (e.g., hierarchical fine-tuning)?

Affectivism in 2050: Will machines feel?

"Our goal here is to inquire about conditions that would potentially allow machines to care about what they do or think. Under certain conditions, machines capable of implementing a process resembling homeostasis might also acquire a source of motivation and a new means to evaluate behaviour, akin to that of feelings in living organisms. Drawing on recent developments in soft robotics and multisensory abstraction, we propose a new class of machines inspired by the principles of homeostasis. The resulting machines would (1) exhibit equivalents to feeling; (2) improve their functionality across a range of environments; and (3) constitute a platform for investigating consciousness, intelligence and the feeling process itself."

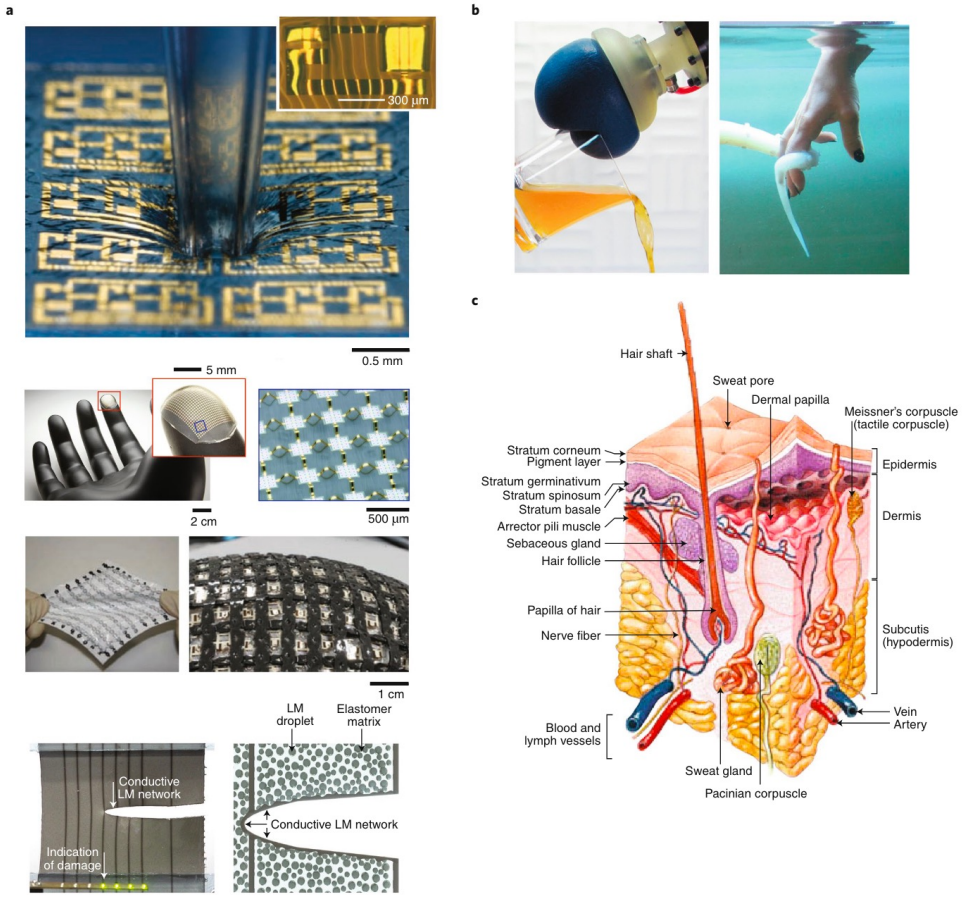


Fig. 2 | Artificial and natural soft materials. a, Soft electronics can be embedded on flexible and stretchable substrates. LM, liquid metal. **b**, Soft robotic effectors grip by conforming to the object. **c**, Human skin contains dense embeddings of sensors and effectors for the maintenance of its own integrity. Reproduced from ref. [23], AAAS (**a**, top three rows); ref. [29], Wiley (**a**, bottom row); and ref. [24], Elsevier (**b**). Credit: National Cancer Institute (**c**).

Homeostasis: process by which a system maintains internal stability despite external changes.

Man, K., & Damasio, A. (2019). Homeostasis and soft robotics in the design of feeling machines. Nature Machine Intelligence, 1, 446–452. https://doi.org/10.1038/s42256-019-0103-7

Exam

- Multiple-choice: 20 questions Kognitionspsychologie I, 20 questions Kognitionspsychologie II; 50% A, 50% K-prim
- Language: English (physical dictionary can be used)
- Time & location: Tuesday, June 3rd, 8:00-10:00, DSBG Neubau, Sporthalle 1 (we aim to let people in at ca. 7:30 so we can start at 8:00)