

Some background and news about growth mindset indicators

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Indicators for a Growth Mindset

- **Indicator 1:** primary focus on developing student's skills and competences instead of letting them demonstrate their skills and competences.
- **Indicator 2:** information about effective learning strategies, and on how to effectively regulate and evaluate learning.
- **Indicator 3:** information about neuroplasticity (i.e. the inherent capacity of the brain to form new neural connections throughout life).
- **Indicator 4:** support of the belief that success is controllable by the students and dependent on their efforts.
- **Indicator 5:** supports students' need for autonomy, i.e. they can feel free and self-determined.
- **Indicator 6:** makes students aware that they have learned something and helps them experience their newly acquired competence.
- **Indicator 7:** support of students' need for feeling significant to others and connecting to others.
- **Indicator 8:** support of students' process-focused thinking.

Indicators for a Growth Mindset from a theoretical perspective

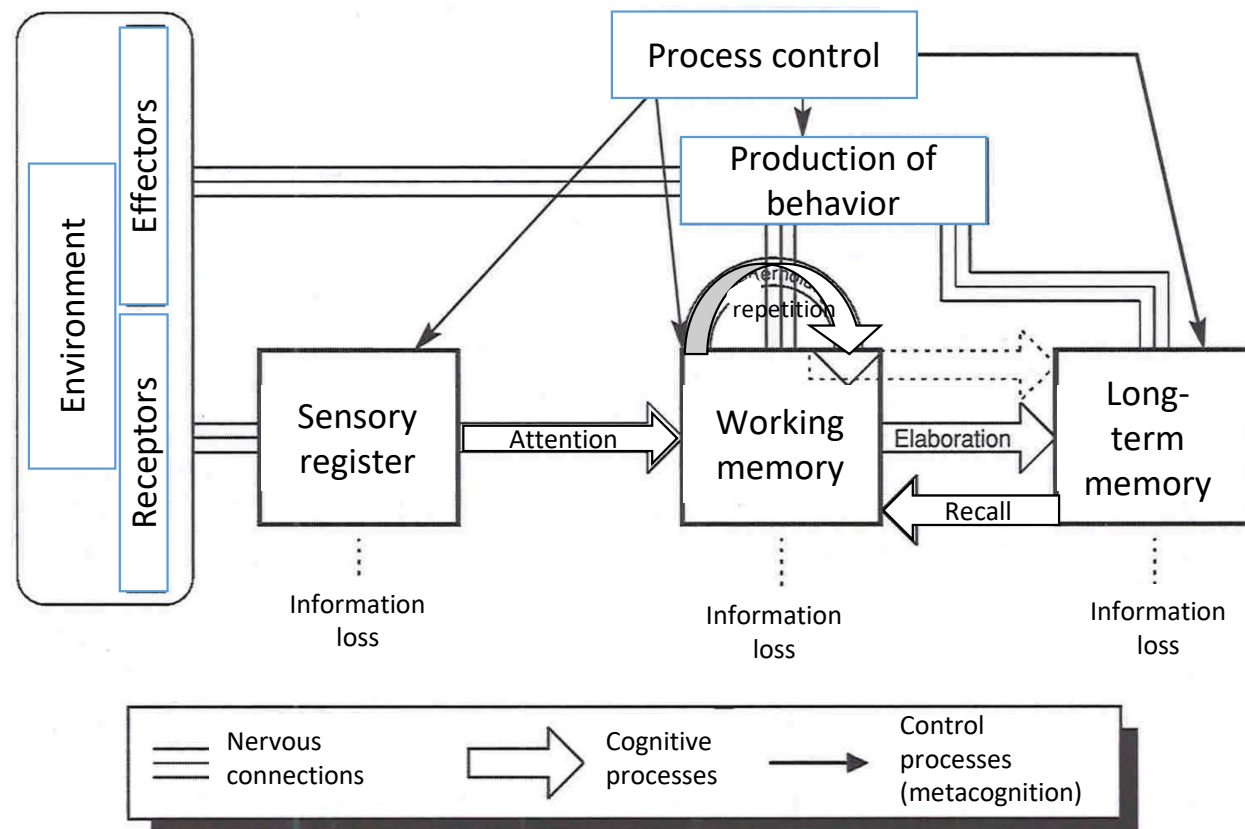
1. Beliefs about mindset / metacognition (how does memory/the brain work?; indicators 2, 3)
2. Attributional Style and Locus of Control (indicator 4)
3. Achievement Goal Orientation (indicator 1)
4. Self-determined motivation (indicators 5, 6, 7)

Maybe: Self-regulation

Metacognition

- Knowledge about own attention processes and their control
- Knowledge about own memory processes and their control
- Needed to apply learning strategies

Attention and Memory Processes



Mietzel, 2017, S. 274

Learning strategies

- **Elaboration strategies** (e.g., asking questions, activating prior knowledge, note-taking, memo techniques, repetition strategies).
- **Organizational strategies** (e.g., summarizing text information, knowledge schemas, external visualization learning strategies)
- **Self-control and self-regulation strategies** (e.g., planning, monitoring, evaluating, taking responsibility)
- **Motivation and emotion strategies** (e.g., activating motivation, reducing test anxiety, goal development)
- **Strategies for cooperative learning** (e.g., promoting the ability to work in a team)
- **Use of resources** (e.g. time management, targeted selection of learning environments)

Mandl & Friedrich (2006)

Attributional Style and Locus of Control

Success: I have a good grade because...
...I have good abilities!
...I have made an effort!
...the task was easy!
...I had luck!

Failure: I have a bad grade because...
...I have bad abilities!
...I have not made enough effort!
...the task was too difficult!
...I had bad luck!

Stability dimension

Stable
Unstable

Locus of causality

Internal

External

		Locus of causality	
		Internal	External
Stability dimension	Stable	Ability (internal/stable)	Task Difficulty (external/stable)
	Unstable	Effort (internal/unstable)	Luck (external/unstable)

Which attributional style goes in line with a fixed mindset? Why?

Which attributional style goes in line with a growth mindset? Why?

Weiner (1985)

Re-attribution: Is it possible?

And how?

<https://doi.org/10.1080/00405841.2021.1932160>

Attribution Retraining (Finsterwald, 2005, p.66)

Commenting techniques include verbal and written feedback as well as operant reinforcement. The advantage of this method is its immediacy: a person is given a motivationally favorable explanation for an action result immediately after it has occurred. The commenting technique also includes any kind of written feedback, be it on homework, schoolwork or notebook entries. In this case, the immediacy is no longer given, but this form of commenting enables elaborated and differentiated feedback. In the operant method, individuals are reinforced by praise for desirable attributions and by reprimand for undesirable attributions. This supports the formation of favorable attribution patterns.

Attribution Retraining (Finsterwald, 2005, p.66)

The **modeling technique** is based on the theory of learning from the model according to Bandura (1977). The trainer verbalizes model desired attributions or clarifies desired attribution styles to the students. For example, a physics teacher may comment on her procedure when demonstrating a physics experiment. If the experiment is not successful at first attempt, this is a good opportunity to verbalize the reasons for this (naming disruptive factors; discussing how these could be eliminated).

Desirable Attributional Style

Success: I have a good grade, because...

...I have good abilities!

...I have made an effort!

...the task was easy!

...I had luck!

Failure: I have a bad grade, because...

...I have bad abilities!

...I have not made enough effort!

...the task was too difficult!

...I had bad luck!

Stability dimension

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Weiner (1985)

Achievement Goal Orientation (e.g., Dweck, 1986)

Difference between performance goals and mastery goals:

- Performance (ability, ego) goals: Focus on gaining favorable judgement or avoiding unfavorable judgements by others.
- Mastery goals: Concentration on the content to be learned, the focus is on wanting to understand.

Consequences of a performance goal orientation

- Students strive to give a reflection of their ability. Their goal is to outperform others with their performance. Students tend to use facile learning and processing strategies.
- Tendency toward self-handicapping behavior: making timely arrangements to make failure appear to be the result of unfavorable circumstances: Reducing learning time, partying through the night before the exam, procrastination,...
- Avoidance tendency with presentation goals: Most energy is used to counteract the impression of incompetence

Students with performance goals think:

- "I try very hard to get the best grades in the class"
- "I don't feel good when others are better than me"
- "It especially challenges me to work competitively with others"
- "If I am not sure I can give a good answer, I prefer not to say anything at all in class"

Consequences of a mastery goal orientation

- Students demonstrate engagement in challenging tasks,
- Students use effective and active learning strategies (e.g., checking own understanding, self-correcting) and avoid superficial learning strategies,
- Students reveal their interest and thereby do more than is at least expected,
- Students exhibit positive attitudes toward school and toward themselves as learners.

Students with mastery goals think:

- "I am not interested in grades that others have received"
- "It is important that I strive to find solutions, even if I make mistakes along the way"
- "What matters most to me is improving my skills"
- "The main reason that I work for the school is my desire to learn"

Why do performance goals correlate higher with academic achievement than master goals?

According to Senko (2019): Three explanations...

<https://doi.org/10.1016/j.cedpsych.2019.101795>

The task challenge framework posits that...

performance goals facilitate achievement only on simple tasks, and that mastery goals do so on challenging tasks.

Simple tasks: good odds of success (performers) but could undermine learning and achievement (master).

Hard tasks: worry of being judged incompetent (performers), but meaningful growth in competence (master).

The depth of learning match framework posits that...

performance goals facilitate achievement only when assignments assess superficial topic knowledge, and that mastery goals do so when assignments assess deeper knowledge.

Performers benefit from teachers' tendency to assess superficial topic knowledge.

The learning agenda match framework posits that...

performance goals facilitate achievement only if task demands are clear, and that mastery goals can do so if students' interests match the core topics assessed on assignments.

Performers tend to focus on teachers' criteria to outperform others. They benefit from clear instructions and goals by the teacher.

Masters tend to focus more on personal criteria to understand the content. This can jeopardize achievement if it leads students to neglect course material.

- Task challenge framework?
- Depth of learning match framework?
- Learning agenda match framework?

Results by Senko (2019)

- Learning agenda framework is the most valid explanation: Teachers' criteria versus personal criteria
- Performance goals aid achievement if teachers are clear about how to succeed.
- Mastery goals harm achievement if exams are closed rather than open-ended exams.
- Exam difficulty does not moderate either goal's effects on achievement.
- Surface or deep studying strategies does not explain either goal's effects.

Dilemma

- A growth mindset is clearly connected to mastery goals
- Performance goals are higher connected to academic achievement
- Fostering performance goals?
- Avoiding clear learning goals and criteria?

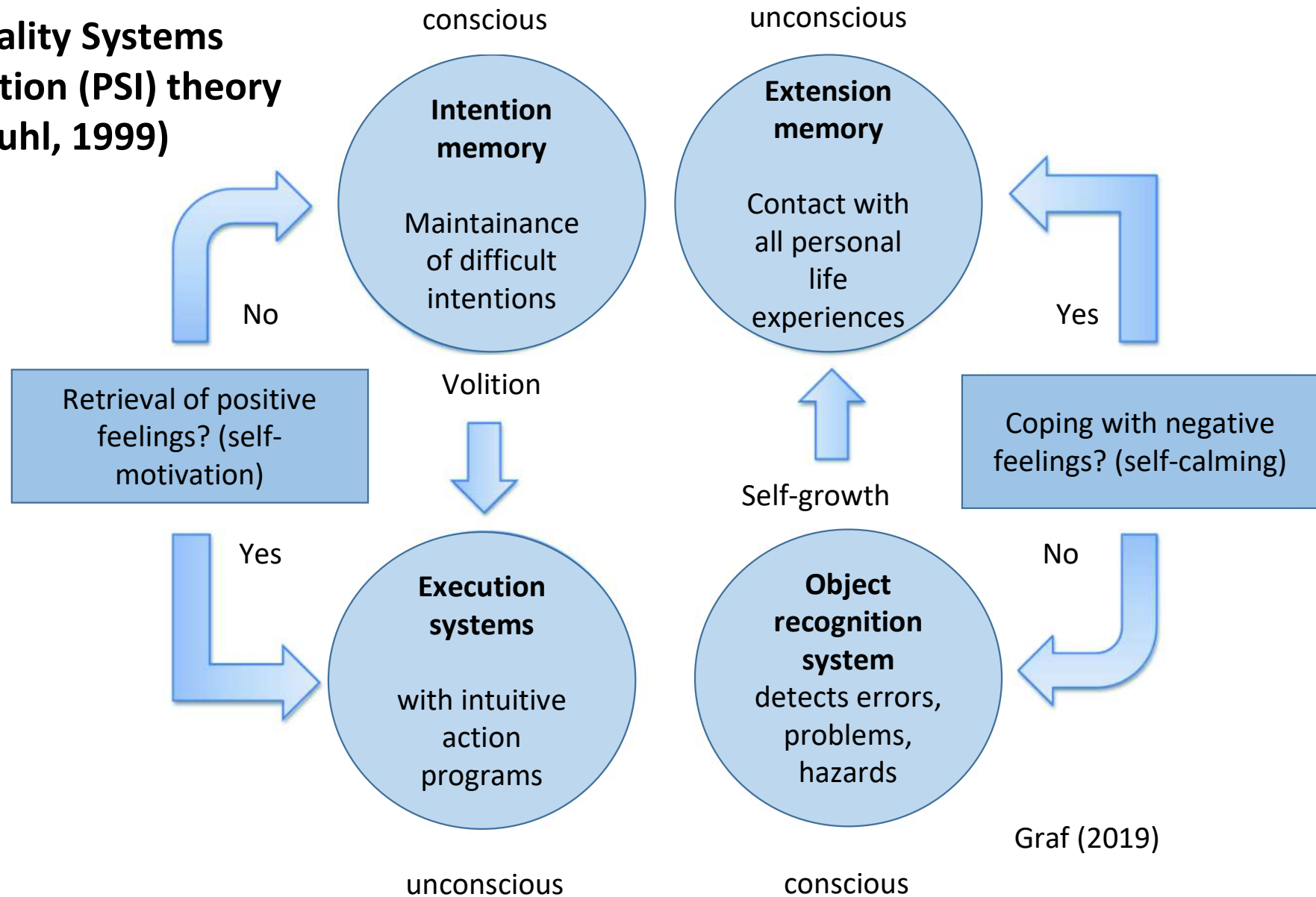
Self-regulation and self-control

- In psychological research, various phenomena have been termed self-regulation and have been intermingled with the understanding of self-control. However, there is a common agreement about the difference between the two concepts: Self-regulation is conceptualized broader and refers to feedback loop models, or self-development and goal formation processes, whereas self-control has a narrower meaning and is more associated with impulse control and goal pursuit behavior (e.g., Kuhl & Fuhrmann 2008; McClelland et al. 2018; Nigg 2017; Vohs & Baumeister 2018).
- There is clear evidence that a lack of self-regulation in childhood leads to lifelong disadvantages in terms of unemployment, aggressive behavior, depression and anxiety, substance abuse, and symptoms of physical illness in adulthood. (Robson et al. 2020).

Self-regulation („inner democracy“)	Self-control („inner dictatorship“)
Goal development	Goal pursuit
Self-determination	Planning
Self-calming	Impulse control
Making decisions	Initiating activities

e.g., Kuhl & Fuhrmann, 2008

Personality Systems Interaction (PSI) theory (e.g., Kuhl, 1999)



Thank you!

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