GROWTHMINDS

Teaching for Growth mindset in higher education

Erasmus+ project GrowthMinds

With the support of the Erasmus+ Programme of the European Union

Question 1:

What's my name? From which faculty do I come from?

Question 2:

Which courses do I teach? How long do I teach?

Question 3:

Why did I apply to this course? What do you expect?

Activity

Let's introduce ourselves

Reflect and discuss

Try to reflect on your previous experience with **a very successful student.**

Which of the students' characteristics and behaviors were important for his/her success?

Are there any other factors of academic achievement?

Internal and external factors

talent, ability,
effort, persistence,
strategies,
commitment,
personality traits
...

INTERNAL

luck, good teacher,
didactic materials,
easy exam ...

EXTERNAL

Controllable or non-controllable factors

CONTROLABLE

NON-CONTROLABLE

Controllable or non-controllable factors

strategies, focus, effort, perseverance

CONTROLABLE

abilities, personality

easy exam, luck, good teacher

NON-CONTROLABLE

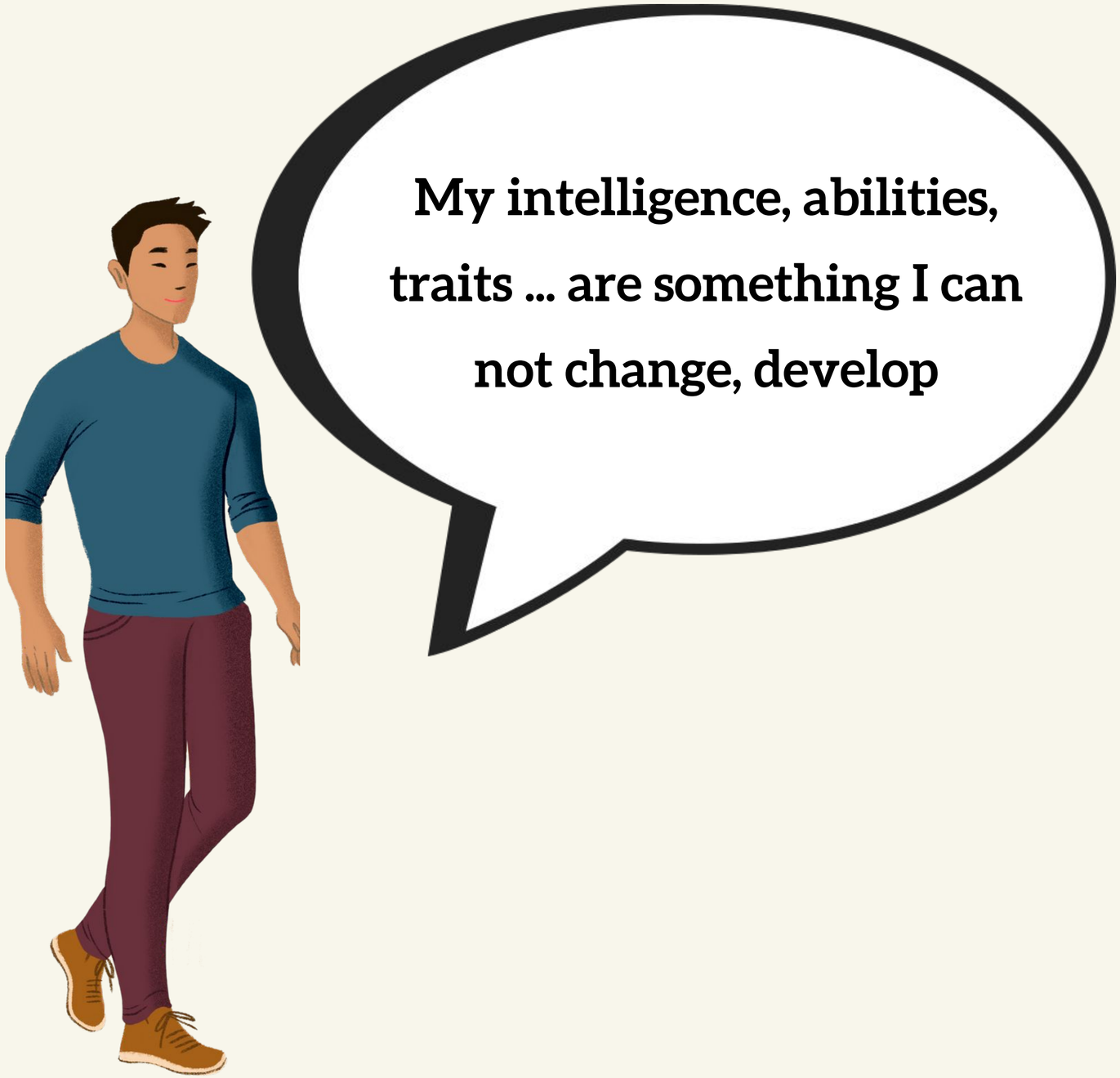
Mindset

MINDSET

is the belief regarding the nature of one's characteristics

Carol Dweck

FIXED MINDSET



GROWTH MINDSET

Intelligence

Creativity

Personality traits (e.g. accuracy,

kindness,

emotional stability, shyness ...)

Musical abilities

Math abilities

Foreign language abilities

Motor abilities

Fixed or growth mindset?

We can have both.

Question 1:

Fixed or growth mindset?

Recognizing fixed and growth mindset

- I can not do that, because I am not talented for this.
- Math is just not my thing.
- I need challenges to grow.
- I do only things I am good at.
- I can become smarter.
- I am as I am.
- I can learn how to solve this mathematical problem.
- I can not change how intelligent I am.
- I am not good at that yet.
- I can change some traits and behaviors, that
- I do not like about myself.
- I am not good in sport/ school/ music/....
- I learned something from my mistakes.

Mindsets develop on the basis of our experiences, feedbacks from our social environment, observing others, formal knowledge ...

Mindset and motivation

1. SETTING CHALLENGES
2. DEALING WITH SETBACKS
3. INTERPRETATION OF FAILURES
4. FACING CRITICISM
5. GIVING IN EFFORT

Mindsets are changeable.

Interventions are more efficient for some aspects of learning.

Interventions are more efficient for some groups of students.

Activity

Think about how you would recognize a student with a fixed or growth mindset?

In which situations would this be more observable?

How would students with a fixed or growth mindset think, behave in the classroom?

Reflect and discuss

What are your current dillemas, questions regarding the meaning, importance or benefits of GM?

Misconceptions

Growth mindset is NOT

1. BELIEVING EVERYONE IS THE SAME
2. JUST THINKING 'POSITIVE'
3. JUST PRAISING EFFORT
4. ACCEPTING EVERY CRITICISM
5. BEING PERFECT

GM interventions are more beneficial for some students than others

GM interventions are more beneficial for some aspects of learning than others

Mindset in higher education

Mindset

development

1. Inconclusive results
2. Preschool - Growth mindset
   (Heyman, Dweck in Cain, 1992)
3. Higher education - a tendency towards fixed mindset
   (Limeri idr. 2020)
4. Relationship between preschool and adult mindset is not researched yet

Teachers' mindset does not directly effect students' mindset


The Nature of Brains and Intelligence
Growth Mindset Reflection
Growth Mindset Language
GM Teaching Categories
Growth Mindset Assessment
Growth Mindset Tasks

GM - supportive class environment is CHALLENGING and DISCIPLINED (but NURTURING)

Classroom climate

In my classroom do I create an environment ...

- THAT IS INTELLECTUALLY STIMULATING FOR STUDENTS?
- THAT PRESENTS AND DEMANDS A DISCIPLINE?
- WHERE STUDENTS FEEL MY SUPPORT?

For each element try to assess how much it is present in your classrom (low, medium, high).

What is the evidence for your self-assesments?

Share with others which strategies do you use to achieve a high

Classroom climate

CHALLENGE

Present them with challenges

Provide them with tools to

achieve goals

encourage active participation

level of self-disclousure

DISCIPLINE

Clear structure

Rules and consequences

SUPPORT

Interest and concern for

students

Frequent communication

Adjusting teaching strategies

Use of humor and adequate

Brain, intelligence, learning, memory

Question 1:

In your teaching practice do you ever?

- provide information to students on how brains work?

- provide information on how brains develop and change?

- let students know that they can change their brains by studying?

- talk about what intelligence is or what does it mean to be intelligent?

- how intelligence is developed?

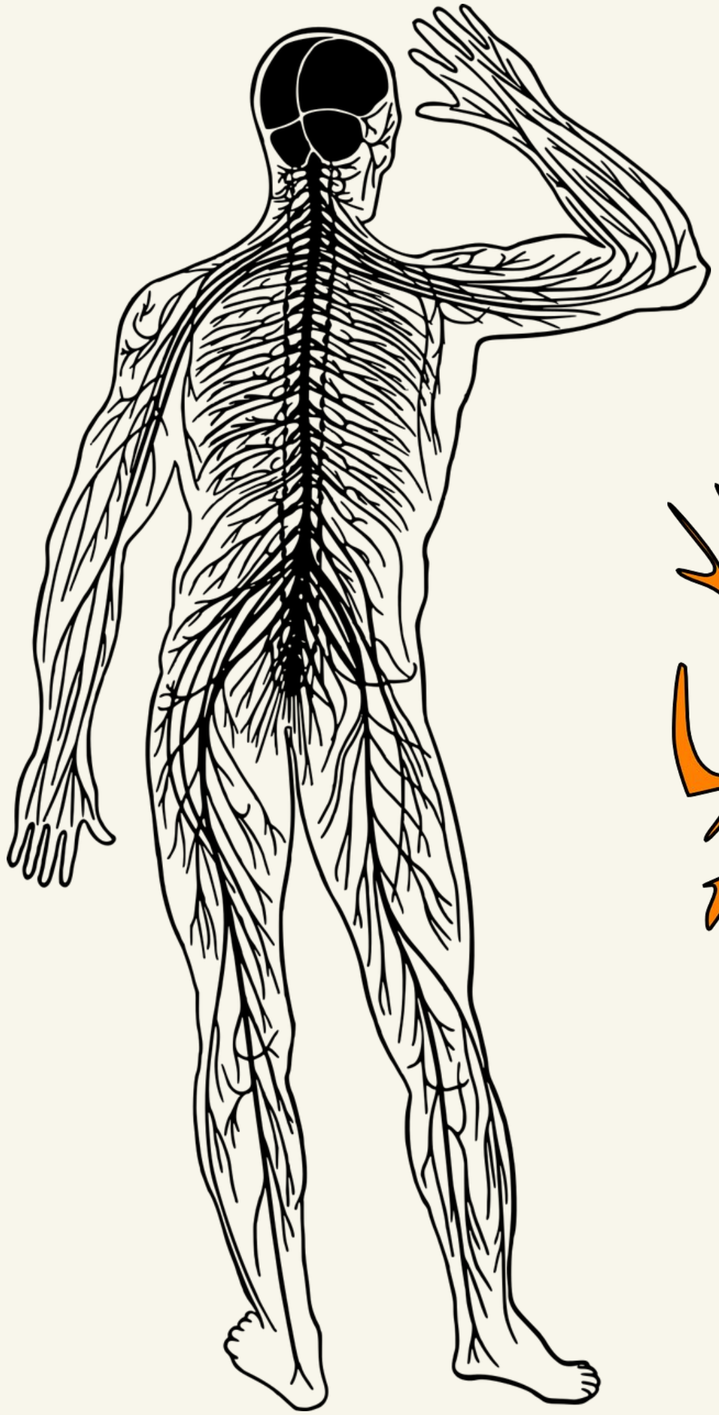
- what is the role of genes and environment in the human development?

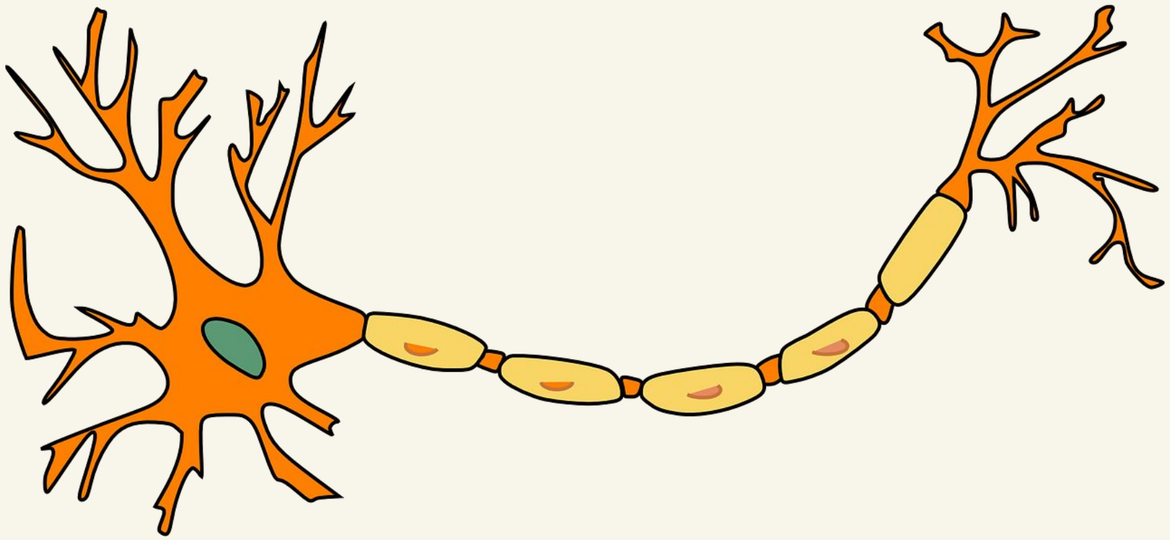
- how do we learn?

-how does human memory work?

- how can we improve our own learning, memory, intelligence?

Brain development





Brain development

1. FORMATION OF NEURONS
2. MIGRATION OF NEURONS
3. NEURAL PRUNING
4. GROWTH AND ORGANIZATION OF NEURONS
5. MIELINIZATION

Brain development

= maturation + experiences

(environmental stimuli, sensitive periods)

= brains are not fully developed before the **mid-twenties**

= the neural connections keep changing during whole lifetime

Brain plasticity

Neuroplasticity

= capacity of the brain to shape and form new neural connections throughout life in response to experiences and changes in the environment (Kania et al., 2017)

= in certain regions adult brains are as malleable as child's brains

Neuroplasticity

1

DEVELOPMENTAL PLASTICITY

2

PLASTICITY OF LEARNING AND MEMORY

- MRI imaging of London taxi drivers revealed increased brain volume in the area responsible for spatial memory. Volume was correlated to the length of driving experiences (Maguire et al., 2000; 2006).
- Research identified important functional and structural changes in the brains of pianists (Pascual-Leone, 2001).
- Brain changes need to be maintained by practice.

3

PLASTICITY AFTER INJURY

HOW CAN I USE KNOWLEDGE ON NEUROPLASTICITY TO SUPPORT MY STUDENTS GROWTH MINDSET?

- Introduce students to how our brain works, how we learn.
- Students become more interested in learning when they find out they can get smarter by rewiring their brains through study and practice.
- Show students a video about brain plasticity.
- Mindset interventions may be more influential if they integrate information about brain plasticity in adulthood.

ABOUT THE BRAIN AND NEUROPLASTICITY

- What did I find out?
- What suprised me the most?
- Did I understand something differently before?
- What did I remember most?
- Can I use new knowledge for my teaching?

Intelligence

Question 2:

About intelligence

What is intelligence?

How would you recognize an intelligent person?

Narrower and broader definitions of intelligence

PSYCHOMETRIC INTELLIGENCE

EMOTIONAL INTELLIGENCE

MULTIPLE INTELLIGENCE

Psychometric intelligence

= ability/ies, allowing to successfully solve intellectual problems

= measured with IQ tests

= predictors of work and academic achievements

How many cognitive abilities does intelligence consists of?

Are they related or independant?

Spearman: G-factor

Cattell: Fluid and crystallized intelligence

Cattell, Horn, Carrol: CHC Theory of Intelligence

How malleable is Intelligence?

For a long time, it was believed that intelligence was something we inherited and **could not do** much to change.

Flynn effect

- Abstract thinking not developed in all cultures
- The role of schooling for IQ persistence

Interventions for improving cognitive abilities

HOW CAN I USE KNOWLEDGE ON INTELLIGENCE TO SUPPORT STUDENTS GROWTH MINDSET?

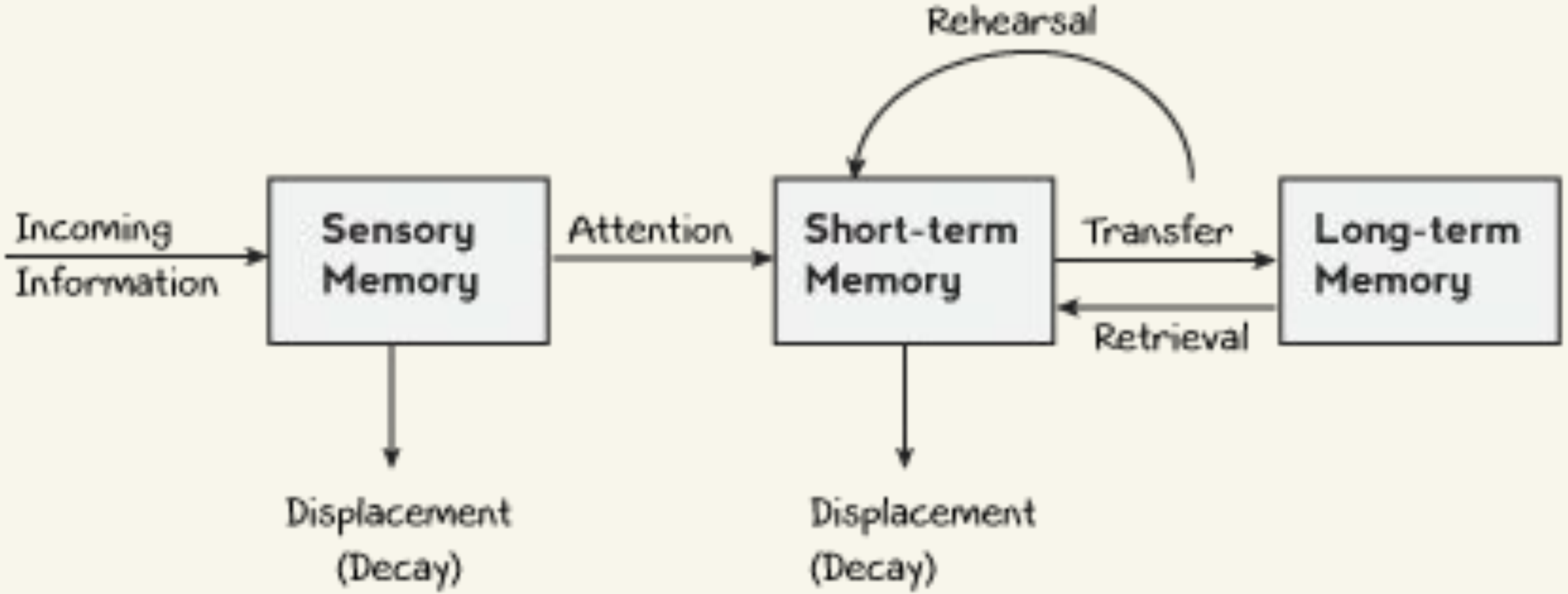
- **Be mindful of how you think & talk about intelligence**
- Intelligence is a common topic in psychology courses, yet a recent analysis showed that 79 % of the most popular introductory psychology textbooks contained inaccurate statements or logical fallacies about intelligence (Warne, Astle, & Hill, 2018).
- Mindset is a belief regarding the malleability of

ABOUT INTELLIGENCE

- What did I find out?
- What suprised me the most?
- Did I understand something differently before?
- What did I remember most?
- Can I use new knowledge for my teaching?

Memory and learning

MULTI-STORE MODEL



GROWTHMINDS

Growth Mindset Language

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The Nature of Brains and Intelligence
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Language etches the grooves through which your thoughts must flow.

Marc Edmonds

Today's menu

1

From labelling to process

Praise effort not talent. Focus the attention on the learning process.

2

Real examples

Provide examples of the growth mindset from various contexts.

3

High expectations

Communicate your high expectations to all students.

4

Positive self-talk

Teach students how positive self-talk support their learning process.

5

Brain growth conversation

Demonstrate the connection between learning and result.

#1 From labelling to process

Label

You are so smart!

Process

I loved how you solved that problem!

It is not that I am so smart. It's just that I stay with problems longer.

ALBERT EINSTEIN

Which sentence reflects a Growth mindset?

Which one reflects a GM?

1. Wow! You really worked hard on this.

2. Wow! You are a real natural at this!

Which one reflects a GM?

1.Why don't you try a different strategy?

2.Maybe you are just not very good at this. We all have some weaknesses.

Which one reflects a GM?

1. You got that done so quickly. Great job!

2. I know this was easy for you, let's try something more challenging.

Something more challenging ...

Create GM alternatives.

Write alternatives for each statement.

Share & discuss with your neighbour.

It's good enough.

Nope. That's wrong! Try harder. Maybe if you paid more attention in class and tried harder, you'd get this.

It's ok. Not everyone can be good at "name of your subject/area".

Focus on the learning process instead of labelling.

Which one reflects a GM?

1.You did all you could do.

2.It's OK not to understand all of it at first. Now try thinking what needs to be done next to understand it better.

Which one reflects a GM?

1.You can always try a different way to get it done.

Maybe you can draw it out instead of writing about it.

2.Keep trying and you will get it soon.

Which one reflects a GM?

1.Wow! I loved that awesome study guide you made to help you study for the exam. That was a great idea. You could create another one for the final exam.

2.Wow! You are a natural at this!

What do you think is the goal of the previous exercises in relation to students?

What do you think is the goal of the previous exercises in relation to students?

To get students to focus on the various strategies that can be used to achieve a goal.

GM framing

Growth-minded language guides students to ensure that they remain persistent, resilient, and focused on the process of learning.

When they struggle despite strong effort.

When they struggle and need help with strategies.

When they are making progress.

Write down an example for each situation.

GM framing

Growth-minded language guides students to to ensure that they remain persistent, resilient, and focused on the process of learning.

When they succeed with strong effort.

When they succeed easily without effort.

Write down an example for each situation.

Resource

Mindsetmaker: Growth mindset feedback

#2 Real examples

Keep the conversation about the growth mindset alive.

1

2

3

#3 High expectations

Think about your own experience with other people having **high and low** expectations of you.

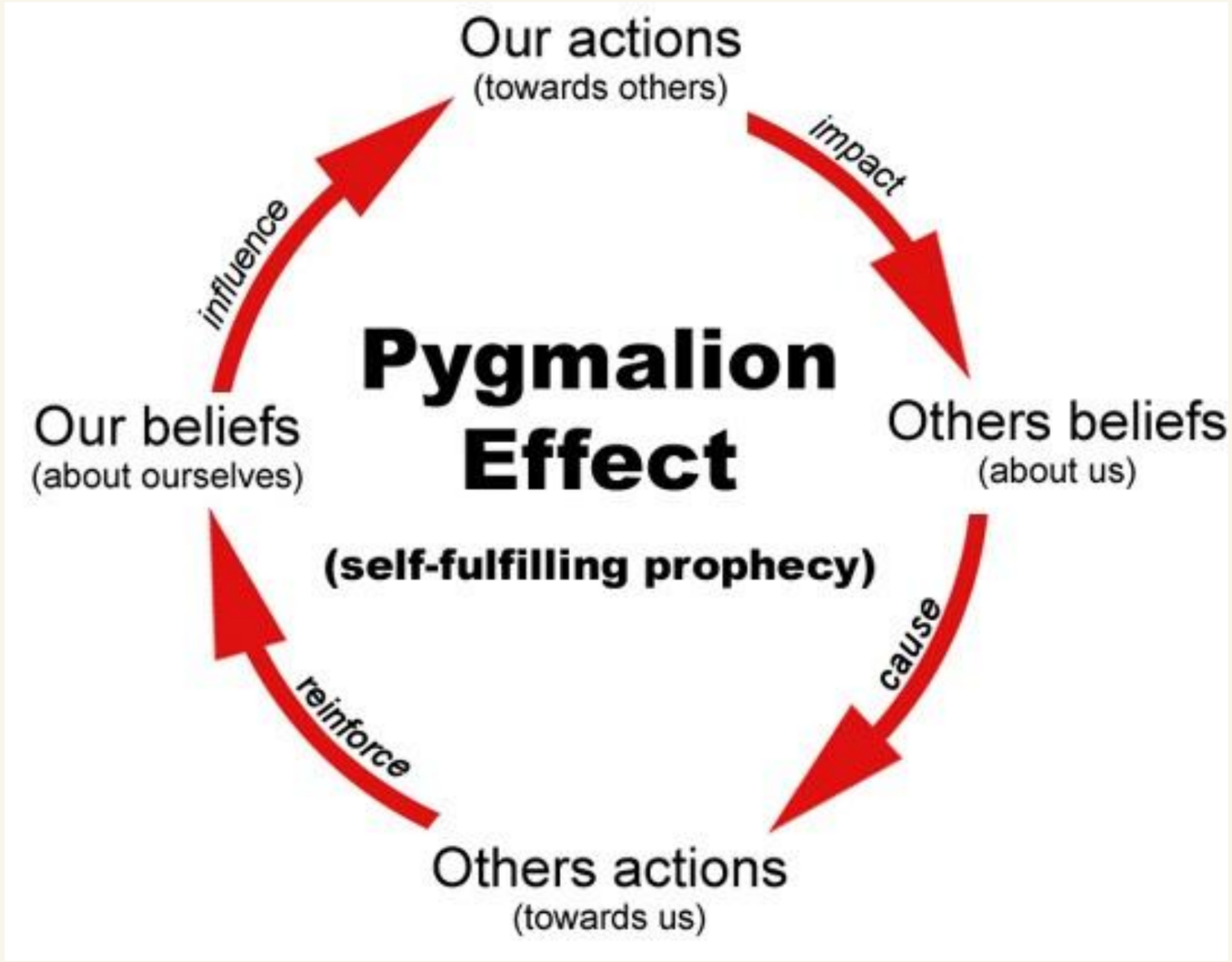
Reflect and discuss with your neighbour

- your feelings, thoughts, actions ...

Why high expectations for ALL?

High expectations for all students

If my teacher feels I can't do it, then I probably can't.



Rosenthan & Jacobsen (1968, experiment)

#4 Positive Self Talk

One day

One day you get a rejection from a journal that is really important to you and that you like a lot. You're very disappointed. That afternoon on the way back to your home, you find that you've gotten a parking ticket. Being really frustrated, you call your partner to share your experience but you get a rain check.

What would you think? What would you feel? What would you do?

Write down thoughts, feelings, actions/behaviour ...

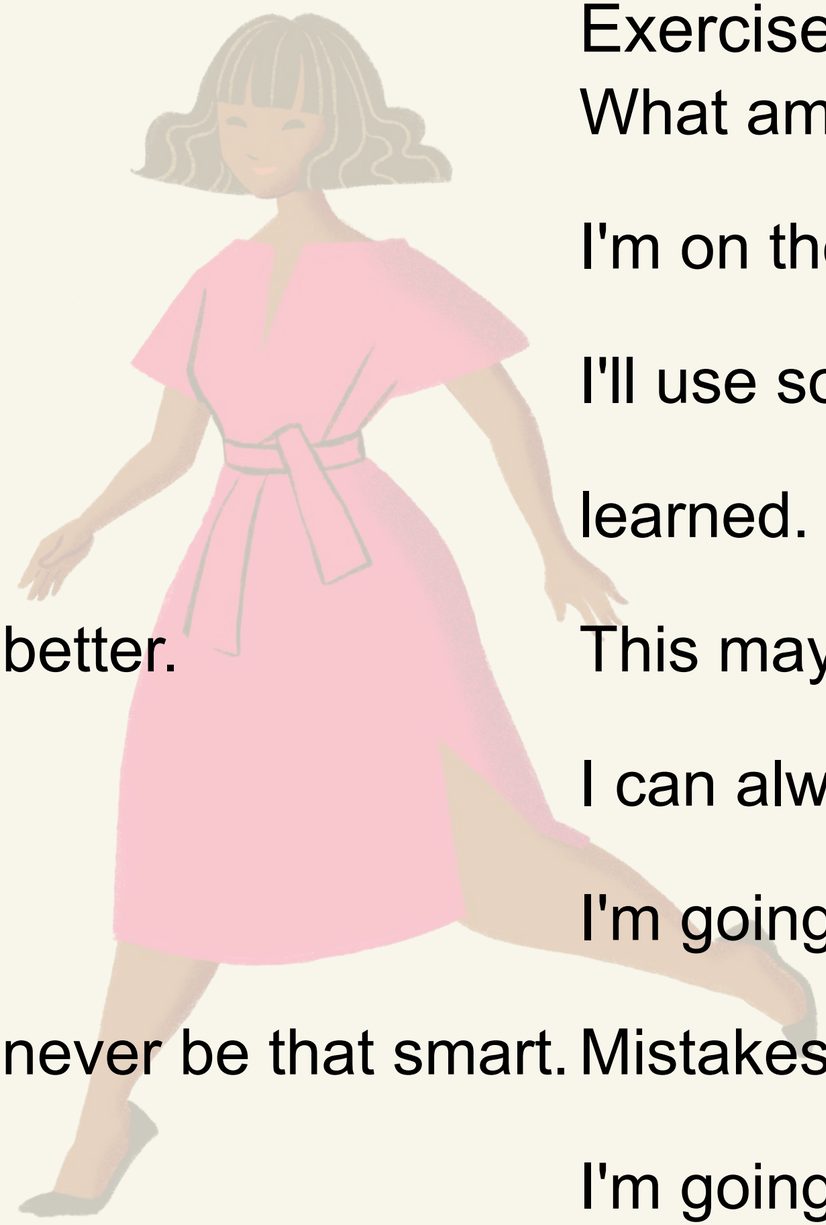
Instead of ...

I am not good at this.

Exercise these ...

What am I missing?

Instead of ...	Exercise these ...
I'm not good at this.	What am I missing?
I'm awesome at this.	I'm on the right track.
I give up.	I'll use some of the strategies we've
This is too hard.	learned.
I can't make this any better.	This may take some time and effort.
I just can't do X.	I can always improve so I'll keep trying.
I made a mistake.	I'm going to train my brain in X.
She's so smart. I will never be that smart.	Mistakes help me to learn better.
It's good enough.	I'm going to figure out how she does it.
Plan A didn't work.	Is it really my best work?



#5 Brain growth conversation

Emphasizing effort, mistakes, brain growth, reflection about learning, high expectations, growth-oriented feedbacks.

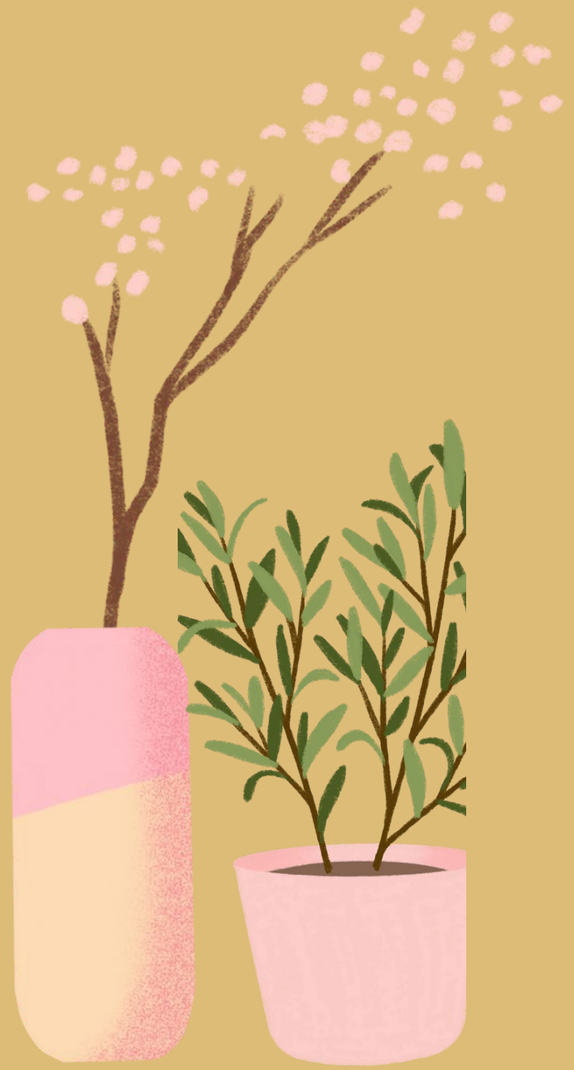
Feedback activity

- Get in groups of 4.
- Discuss the different forms of feedback that occur in your classroom - include, all feedback sources, not just feedback they receive from you.
- Make a group list of your answers.
- Give each feedback a score from 1 to 4:
  - 1 Does not involve growth-oriented feedback.
  - 4 Very high level of growth-oriented

Resource

Mindsetmaker: Growth mindset feedback

Forget the mistake, remember the lesson.



Your best teacher is your last mistake.

Lesson for Today

Growth Mindset Tasks

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Today's menu

1. GM tasks

   Which tasks benefit students?

2. Developing tasks

3. Action plan for implementation in own work

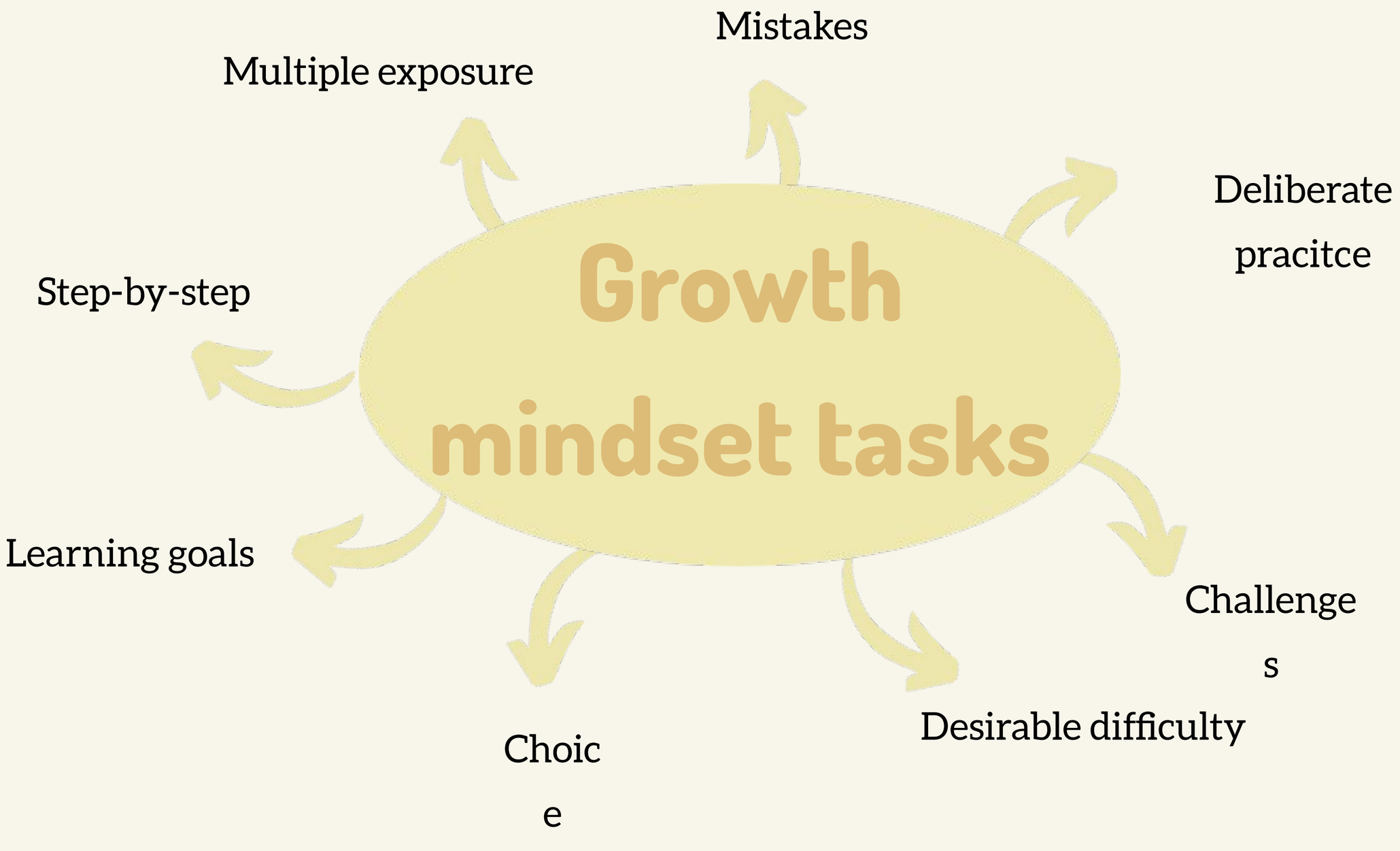
4. Reflection and evaluation

Which tasks* support a growth mindset of students?

*tasks = exercises, activities, reports, field work ...

anything that the students do in your classes.

What exactly benefits students' growth mindset in specific tasks?


Growth mindset tasks
Mistakes
Multiple exposure
Deliberate pracitce
Step-by-step
Learning goals
Challenges
Choice
Desirable difficulty

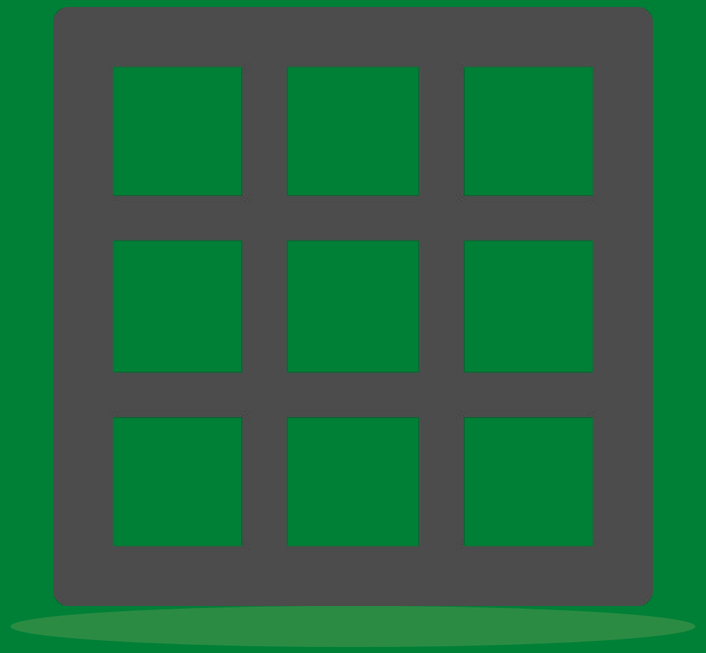
Deliberate practice and challenges

One challenging problem, which expands students' concepts taught in class is better than many low level repetitive exercises.

Desirable difficulty and mistakes

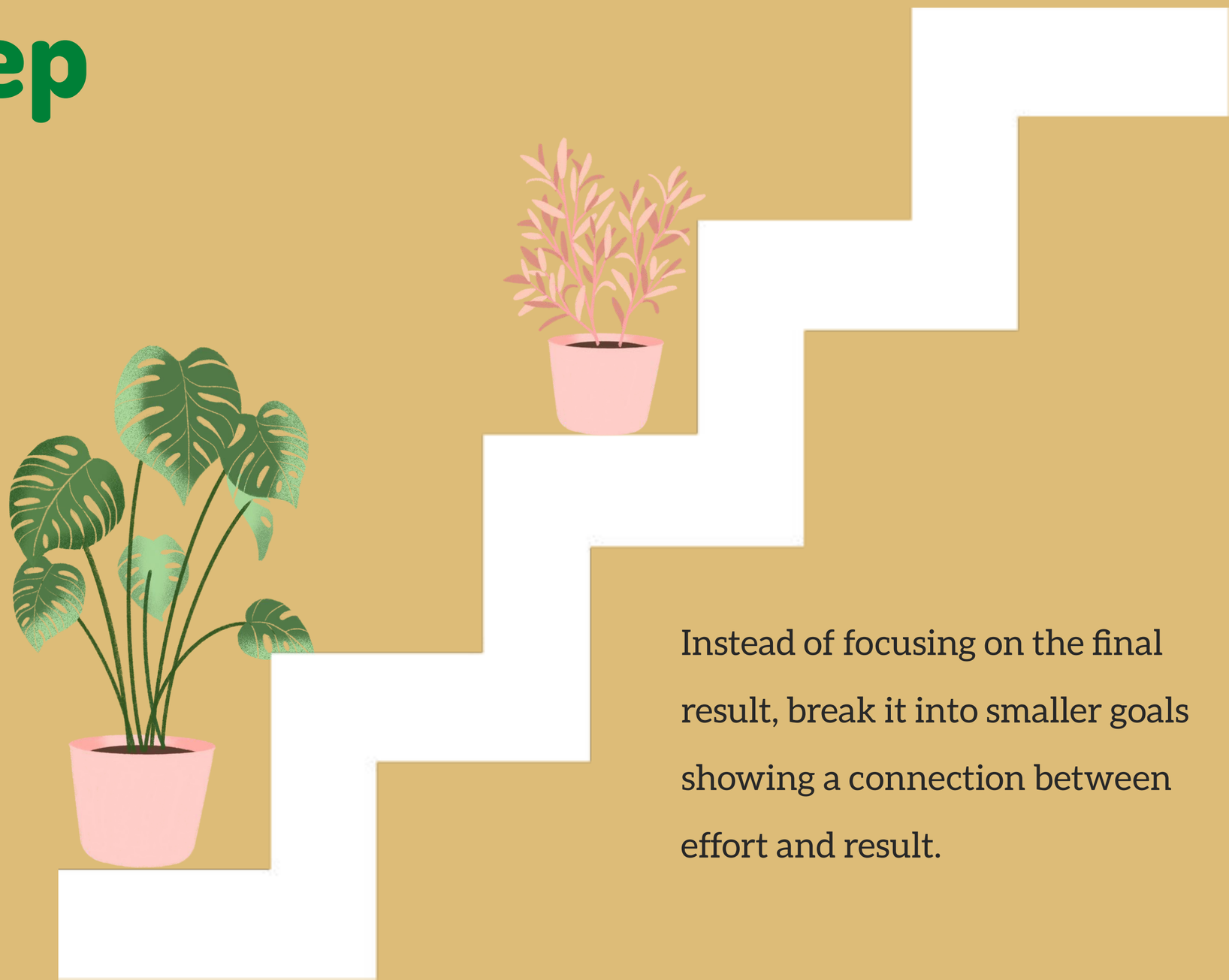
Encourage students to find solutions on their own. Don't punish them for mistakes, teach them how to learn from them.

Multiple exposure



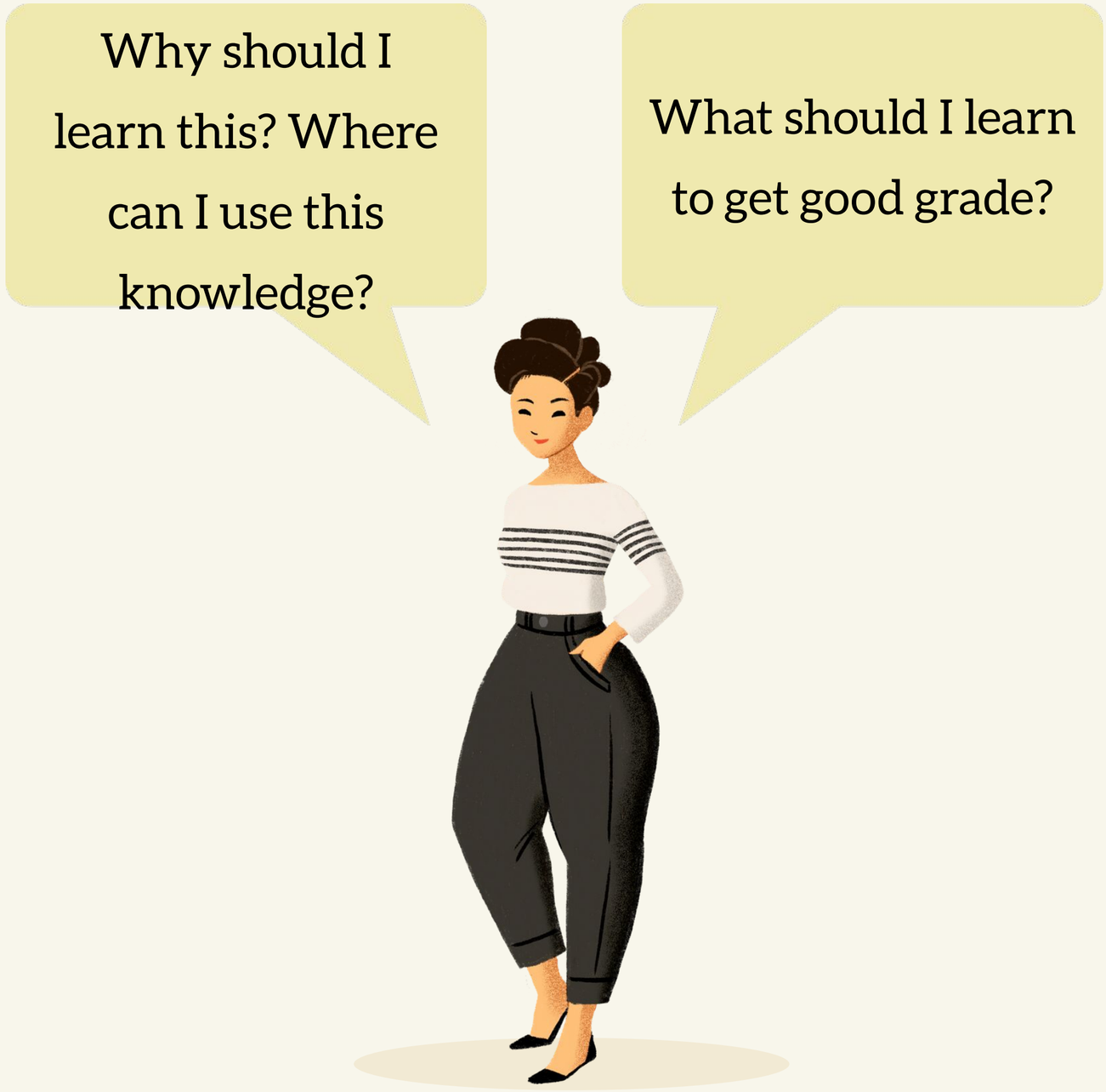
Provide students with multiple opportunities to encounter, engage with, and elaborate on new knowledge and skills.

Step-by-step



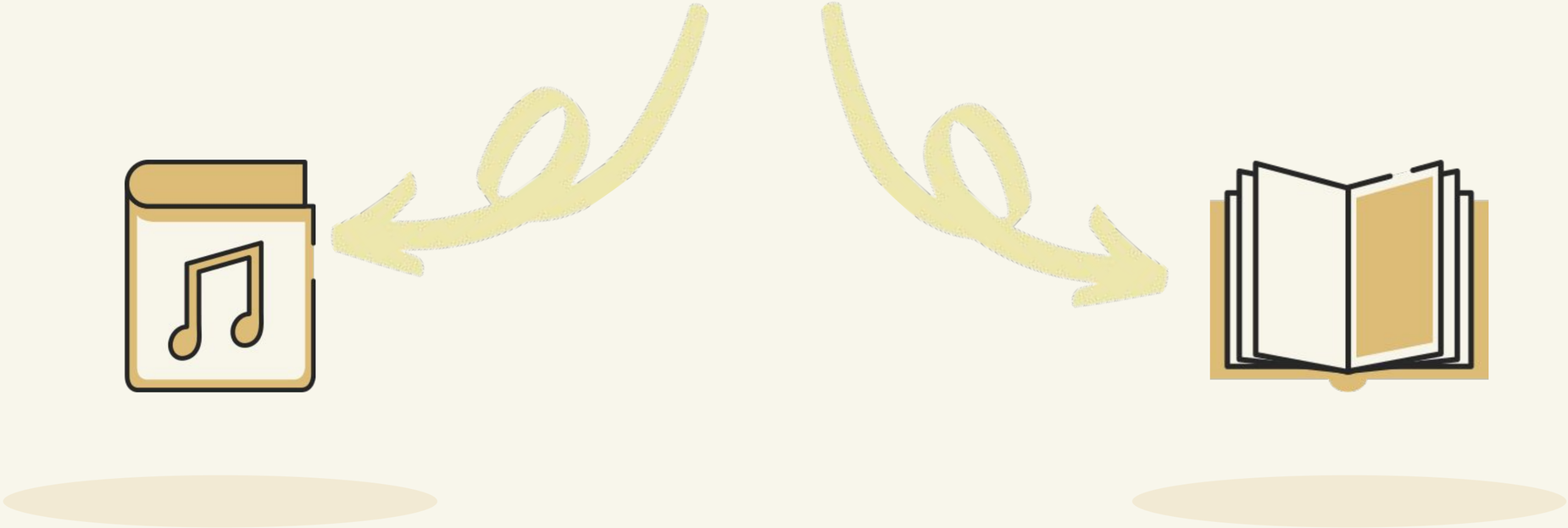
Instead of focusing on the final result, break it into smaller goals showing a connection between effort and result.

Learning goals rather than performance goals.



Choice

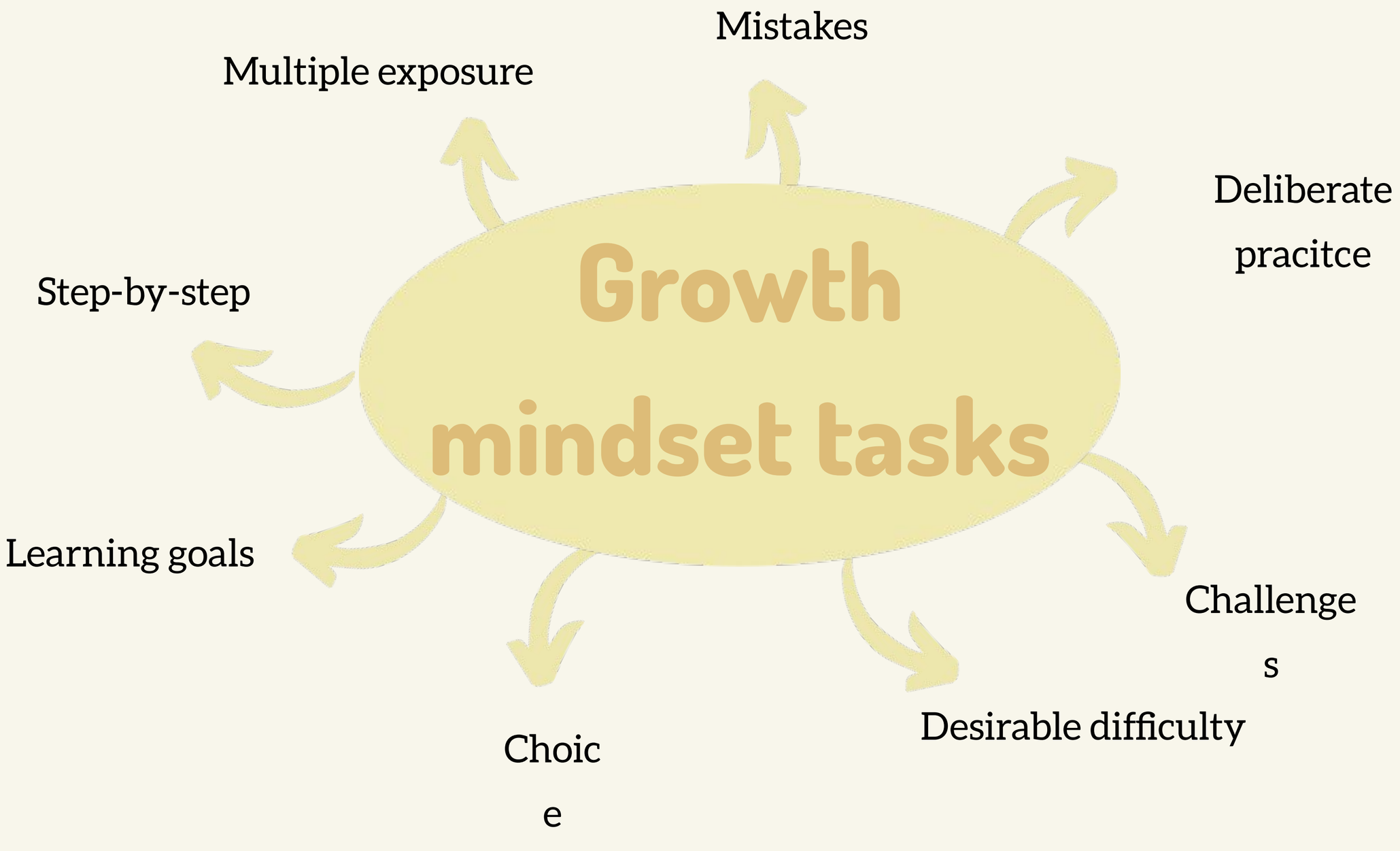
Let students decide. It raises their motivation.



Group activity: Create a task your students would/will do, in order to support their growth mindset.

Prepare a short presentation about the task.

Present it and you will receive a feedback.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Desirable difficulty

Evaluation

Don't skip the important part of giving students feedback on their tasks. They can also lead the discussion on their results/tasks/teamwork. Giving a mark is not necessarily the best way to develop a growth mindset.

Let students lead the discussion.

Prepare criteria for a descriptive evaluation in advance.

Peer evaluation can also serve as a useful method of evaluation.

Assessment and Growth Mindset

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Forms of assessment

Diagnostic assessment

gives students and the teacher information on pre-knowledge

Formative assessment

- assess: **formally** or **informally**
- provide information to a teacher on how to adjust the teaching process
- help students with the learning process
- defining criteria for success
- information on un/successfulness
- information on how to reach the criteria

Summative assessment

= grading the knowledge at the end

Reflect and discuss

Which forms of assessment do I use in my practice?

Try to think of different assessment practices and characterize them as diagnostic, formative or summative assessment.

Diagnostic assessment and GM

test on pre-knowledge can support the progress acknowledgment

At which point of my teaching process do I implement FA (formally or informally?)

Can students use information from FA for further learning?

Do I check if students read and understand my feedback?

Do I share learning objectives and criteria with my students?
(e.g. show an example of good/bad work, assessment rubrics)

Is my feedback:
Specific enough?
Timely?
With tips on how to improve?
Includes some praise?

Formative assessment = GROWTH MINDSET

 # Importance of feedback for further learning

 # Monitoring understanding during teaching and additional explanation provided if needed

 # Learning from mistakes reduces fear of guessing

Forms of feedback

- live feedback in class
- individual written feedback
- ad hoc verbal, e.g. in seminar
- written feedback, unreadable or too short
- exam marks, no comment
- generic written report for all students
- recorded audio feedback for individuals
- talking to small groups about common problems
- face to face one to one
- self-assessment
- criteria sheets – rubrics

Summative assessment

 # Too much emphasis on grades lead to asigning (un)success to students abilities not effort

 # Labels

Assessment and motivation

Can I motivate students without grades?

Higher motivation supports GM

EXTERNAL MOTIVATION

- Learning because of CONSEQUENCES
- External motivators decrease internal motivation (Deci, 1975)

INTERNAL MOTIVATION

- Learning for the process of learning
- Internal motivation is related to more beneficial learning outcomes

Three basic psychological needs and internal motivation

Self-determination theory

(Ryan in Deci, 1994, 2000)

Autonomy

Competence

Relatedness

External motivation

How to make external motivators

(praises, criticism, grades)

more GM-friendly?

Autonomy

 # Students prepare exam questions

 # Provide students choice of assessment method

 # Provide students choice of form of exam questions

#Provide students choice of assessment time

Competency

#They can improve the assignment before final submission

#Challenging, but achievable objectives

Using the word 'yet'

Setting and keeping high standards

Relatedness

 # Students co-construct answers

 # more 'personal' forms of providing feedback

#other students provide feedback

Find at least 3 additional assessment methods you can use in your practice that are GM-friendly.

Work in groups.

Reflection and growth mindset

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3 ways of reflecting

1. Acknowledge the importance of effort, persistence
2. Progress
3. Reflect on the use of learning strategies

ACTIVITY 1:

Share a past experience where you faced an obstacle and put in a lot of effort to successfully manage it.

Acknowledge the importance of effort, persistence

ACTIVITY 2:

Write a letter to a young colleague who is struggling at work.

Acknowledge the importance of effort, persistence

ACTIVITY 3:

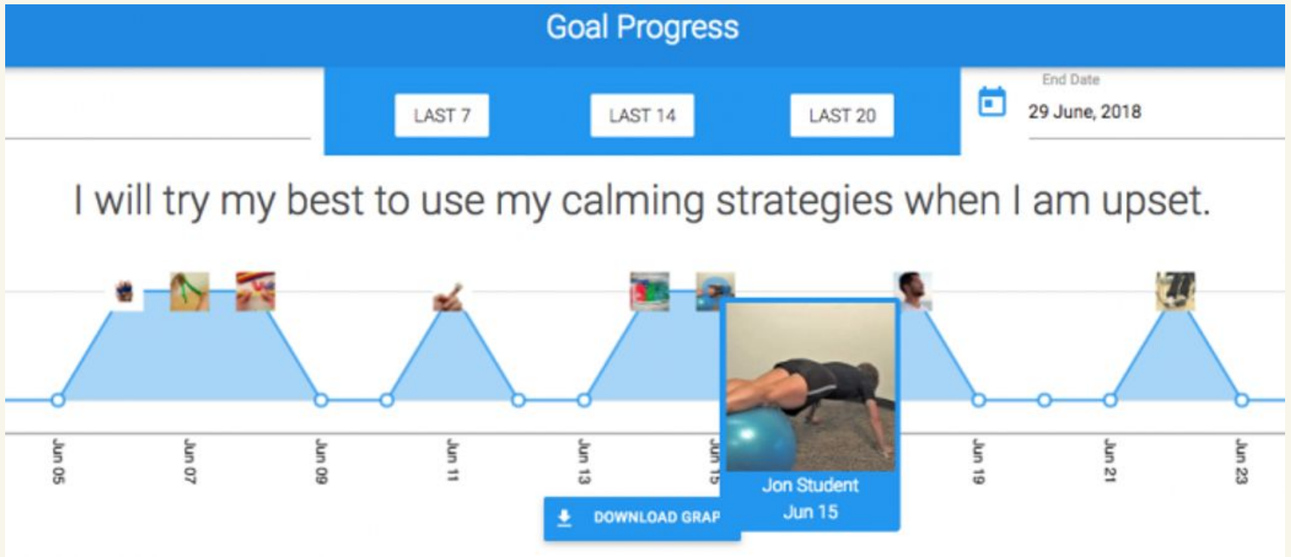
Find an article or video about a famous person, who failed many times, before they succeed.

Guide the discussion in the direction of the main ideas of GM theory (importance of persistence, learning from mistakes, changing strategies etc.)

Progress

ACTIVITY 1:

Encourage students to set short-term goals and measure achieving them



Reflect on the use of learning strategies

- Students normally are not provided with formal training on learning strategies.
- Strategies demanding less effort and training (e.g. rereading, underlining) are more frequently used.
- More complex strategies are seen as less useful eventhough they support better learning.
- Students with GM use different strategies and are willing to change strategy if needed.
- Effort and use of strategies.

Reflect on the use of learning strategies

Mandl & Friedrich (2006): learning strategies

- Elaboration strategies
- Organization strategies
- Samoregulation strategies (planning, monitoring, self-evaluating)
- Motivational strategies
- …

Reflect on the use of learning strategies

ACTIVITY 1:

Encourage the discussion on strategies.

ACTIVITY 2:

Presenting different strategies its efficacy and need for training

Resource: Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. Psychological Science in the Public Interest, 14, 4–58. 10.1177/1529100612453266

Reflect on the use of learning strategies

Activity 3:

Demonstrating the use of strategies, giving them the task of using of a new strategy.

Facing challenges with GM implementation

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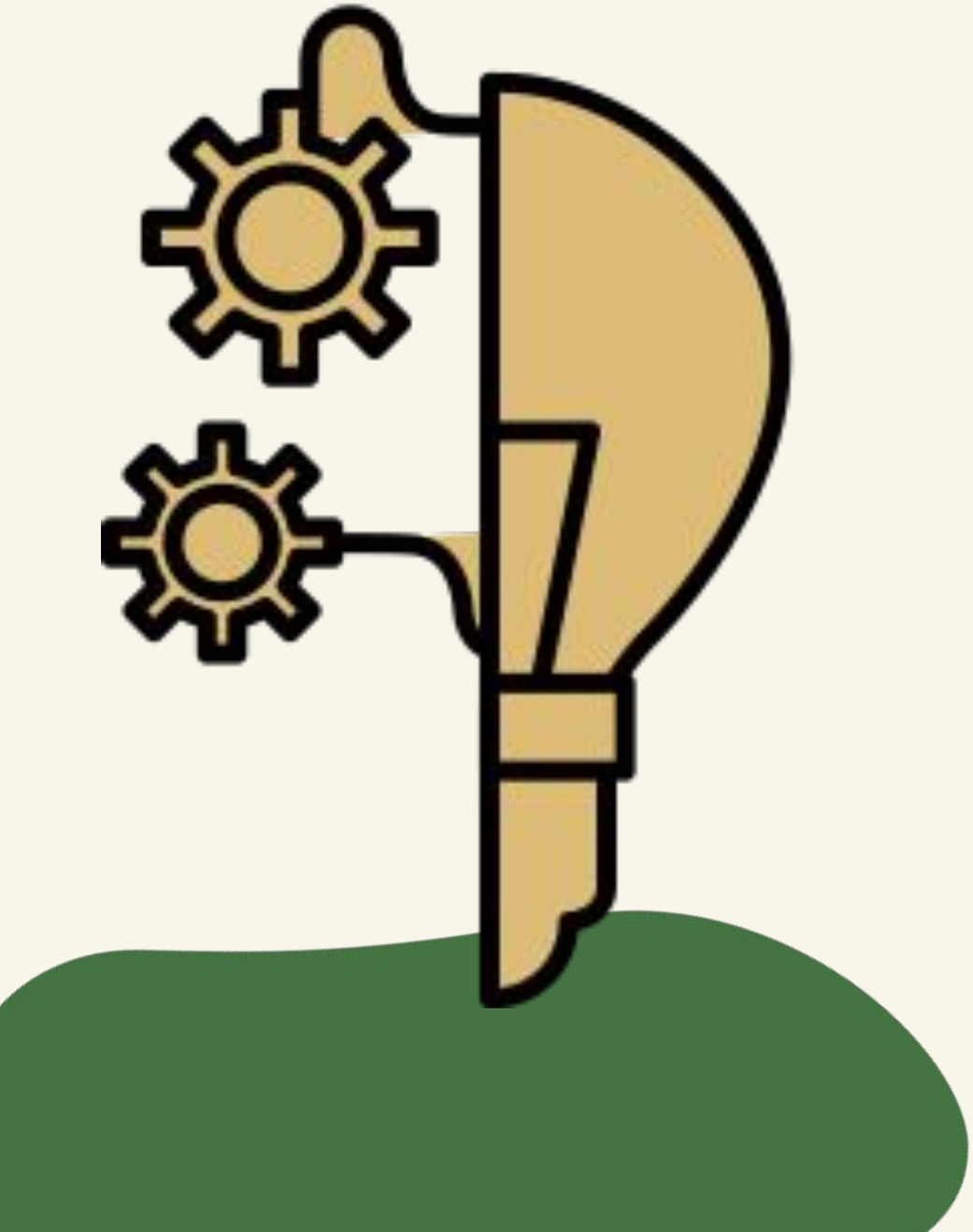

Process-content related challenges

Challenges related to the process of the implementation of different new methods and strategies in my teaching practice.

What can go wrong with the process of implementation?

What obstacles can I face?

Where can I get stuck?

Can I spot any weaknesses in my plan?

Environmental challenges

Challenges outside my direct control in my environment - university, school system, leadership, students, culture, SES ...

What kind of resistence can I face?

Can somebody object to my efforts?

Where in my environment can I find fixed mindsets?

Personal challenges

Challenges that can emerge within myself in the process of implementing GM practices, methods; my own mindset and views ...

Is something holding me back?
Do I have any (non-functional) beliefs about GM or about (starting) this process?
Do I have fears or worries about the plan - regarding myself?

Individual activity: Try to prepare an individual action plan for implementing GM into your teaching practice.

Fill out the worksheet and follow the steps listed.


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Final thoughts?