



GROWTHMINDS



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GROWTH MINDSET

What is a growth mindset-oriented teaching?

By Blanka Tacer

This article is about identifying in which areas a teacher might use different interventions fostering a growth mindset of students. Growth mindset students seek out better feedback, persist for longer, cope better with transitions, and develop better self-regulation. Research supports the idea that educator mindsets may influence the way they respond to students, which in turn has an impact on the students' outcomes. Despite the importance of teaching in the way that supports students' growth mindset, professional development of university educators rarely includes the growth mindset concept. On the other hand, traditional teaching culture focuses on grades, exams, end results, and discouraging mistakes unintentionally prefers fixed mindset. Students with the fixed mindset see setbacks as a sign of low capabilities instead of learning progress. Consequently, they do not search for new learning strategies and show a lack of persistence.

The areas in this article explore five areas of teaching in which we can use the growth mindset interventions: the nature of brains and intelligence, growth mindset language, growth mindset tasks, growth mindset assessment, and growth mindset reflection.



Figure 1: Growth mindset teaching areas

A. The Nature of Brains and Intelligence

Introducing students how our brain works, how we learn, fixed and growth mindset.

Teaching students about brain plasticity

Mindset interventions may be more influential if they integrate the evolving nature of science and information about brain plasticity in adulthood.

Gathering students' experience about how mindset is being developed

How their own experiences and observations affected their mindset beliefs (e.g., their own academic experiences, observing peers' experiences). How authority figures (e.g., parents and teachers) talk about intelligence is influential.

B. Growth Mindset Language

Demonstrating the connection between learning and result

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

You can encourage students to think deeply and communicate to them that they can achieve at a high level, but it takes persistence and character. It requires an understanding that even if success does not come immediately, they must keep trying (Duckworth 2016; Tough 2012).

Keep the conversation about the growth mindset alive

Provide examples of growth mindset

Praise effort not talent

It is necessary to change these messages from ones that praise intelligence to ones that praise effort and tell students they can achieve; it may just take more time and practice, and it won't happen overnight (Boaler 2016; Dweck 2006; Kohn 2015; Pink 2009). This means that instead of saying "you are so smart," you can say, "I loved how you solved that problem. You really thought outside the box."

Promoting positive self-talk

Explicitly teaching students how to use positive self-talk helps them develop essential skills and the confidence necessary to be successful in learning.

High expectations for all students

Wagner (2012) emphasizes that the message we send to our students by having high expectations is that they are capable. When trying to reach high expectations, students see

failures as a result of those high expectations versus lack of potential, and by contrast, low expectations will cause students to question their intellectual ability.

C. Growth Mindset Tasks

Deliberate practice, mistakes and challenges

Very often, students do not need to complete 100 problems in order to demonstrate understanding; sometimes they only need to complete one very challenging problem that extends on the concepts taught in class. Repetitive exercises that require a lot of time to complete can be counterproductive (Rosario et al. 2019). After finishing the one problem, they feel a much greater sense of accomplishment. There are fields of study, however, where exposure to multiple tasks is essential (e.g. English tenses). When this is the case, it is essential for the students to see purpose and meaning in the tasks. Integration of the tasks with real life problems is thus essential. It is also beneficial if the students can develop real life skills in problems they are faced with.

This mastery of a challenging skill also boosts their self-efficacy (Bandura & Schunk 1981). When they go over that problem as a class, have students lead the discussion (Abdulrahim & Orosco 2020). Encourage deliberate and reflective practice. Deliberate practice is the act of isolating what is not working and mastering the challenging area before moving on, allowing the new information to become encoded in memory (Mulligan, 1998).

Desirable difficulty

Create opportunities for desirable difficulty. Working through problems is how we learn: It is better to let students spend some time trying to fix their problems than it is to just give them the answer and go on.

Providing opportunities for mistakes without punishment. Normalize mistakes and failures.

Recognizing mistakes not as an enemy to be vanquished but as a friend with much to teach us.

Multiple exposure

Multiple exposures provide students with multiple opportunities to encounter, engage with, and elaborate on new knowledge and skills.

Adherence to learning goals rather than performance goals

Tendency in students to pursue goals aiming at increasing their ability, according importance to learning (academic importance belief), rather than proving their ability to others.

Step-by-step

Scaffold learning via specific steps/activities, scaffold a final goal into the smaller goals showing a connection between effort and result.

Choice

Give students choice on assignments. Motivation increases when students are given more control, and this increased motivation can, in turn, promote a growth mindset (Howard and Whitaker 2011). Students vary in the way they communicate what they learn. On big projects, give them the opportunity to present their work in different ways; for example, a blog, a video presentation, or a booklet.

D. Growth Mindset Assessment

Give the students opportunities to test themselves, rather than just study or practice the new material. Students sometimes possess intrinsic motivation in which they receive pleasure from the learning process itself without the need for a reward (Gottfried 1985). They possess pride in their accomplishment of a difficult task. You can also create tasks that stimulate their thinking. Students enjoy the challenge of creating their own tests.

Work with students to eliminate the fear of guessing and help them become comfortable starting again if their process is not progressing (Duckworth 2016). You need to determine when to use extrinsic rewards, such as giving a prize or extra points on a test. Rewards and punishments can induce negative thinking or give rise to cheating.

E. Growth Mindset Reflection

Discussion about students' past experience with overcoming a struggle:

- Ask them to reflect on past times when they have learned or overcome a struggle, reminding them that they are capable of doing so observing their peers deal with struggle or noting differences among their peers and reporting in groups.
- Spend time on the first day of class discussing what it means to have tenacity, be persistent, and possess resilience. Share personal experiences when you have had or have not had grit. Let students share.
- Personal reflection and storytelling are used to identify mindsets in practice.
- Small-group discussions to showcase meaningful stories, explore connections between student experiences and mindset concepts, and allow students to share how their thinking about learning has evolved.
- A reflection assignment helps students consolidate their learning.

Growth Mindset questions

Questioning, by using questions to engage students, to monitor their progress and stimulate their thinking, and also by valuing questions from students as a form of feedback and an opportunity for clarification/extension of learning.

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NEUROPLASTICITY

BRAIN'S SUPERPOWER



GROWTHMINDS



Did you know?

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

Up until the 1960s, researchers believed that changes in the brain could only take place during infancy and childhood. As the study of modern neuroscience flourished, a body of research has demonstrated that **people are not limited to the mental abilities** they are born with. Brain continues to create new neural pathways and alter existing ones during the whole life (Demarin et al., 2014).



Ask yourself this...

1. Do I act like I'm in a hurry, during lectures?
2. Do I let students know that they can change their brains by studying?
3. Do I give students a sense of trust in them?
4. Am I sure my explanation is understandable?



Fun facts

1. MRI imaging of London taxi drivers revealed increased brain volume in the area responsible for memory (Maguire et al., 2000).
2. Research identify important functional and structural changes in the pianists brains (Pascual-Leone, 2001).
3. Teaching neuroplasticity has a positive overall effect on motivation, achievement, and brain activity (Sarrasin et al., 2018)



What can you actually do in the classroom?

- **Use revision constantly.** At the beginning of the lesson, have students briefly repeat the material from the previous lesson. Allow them to engage on their own, either in the form of complementarity brainstorming or individually, whatever they feel like. Remember, you are the one who guides them through memory. Resolve any problems vaguely along the way. Recalling a memory and going over material again helps the brain form stronger connections.
- **Don't be in a hurry.** Provide additional help to students with problems or just questions. When a student begins to get extra help and exercise more often, this causes literal changes in neural pathways and strengthens their abilities, and consequently also their faith and self-confidence.
- **Put new information into context.** When teaching new information, we encourage them to find a connection with the previous substance of the connection between the concepts. Whenever new content is given in such a way that students recognize relationships between concepts, they create higher brain cell activity and accomplish more successful long-term memory storage.
- **Pay attention to the student's statements: »I can't«** Remind them to use the words **»yet«** or **»currently«** instead of **»can't«**. When lecturing on topics they are not yet familiar with, include this words into your vocabulary as much as possible.



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LEARNING FOR SUCCESS

PATIENCE IS IMPORTANT



GROWTHMINDS



Did you know?

Students who understand that **success does not come easily**, yet **continue to work hard**, are **more likely to succeed** (Tough, 2012). Also students who **know** and can **articulate how they learn best** and the **support they need** to succeed, are more successful through their academic careers (Tanner, 2012). As a professor, it is critical to understand that **success is an outcome of the student's effort**, rather than one's natural ability or talent (Dweck, 2006).



Good example

»The goal isn't to get it all right away. The goal is to grow your understanding step by step. What can you try next?«



Fun facts

A study that used interventions: a 75-minute presentation on what mindset is, how it relates to learning, and strategies for students to learn statistics with a growth mindset, found that students' mindsets became more growth-oriented, as well as a reduction in anxiety and an increase in course grade (Smith & Capuzzi, 2019).

A **self-fulfilling prophecy**: is in the beginning a wrong definition of a situation that provokes new behaviour, that causes a primarily wrong assessment of the situation to come true.

Research in the school: Teachers' expectations work on the principle of self-fulfilling prophecy. They have a direct effect on the intellectual development of students (Rosenthal, 2002).



What can you actually do in the classroom?

- **Truly believe in the success of your students.** Your expectations influence students' achievements, both positively and negatively (Rosenthal & Jacobsen, 1968).

• Encourage them in difficult situations.

- All right, so it didn't go the way you wanted, let's consider this as a way of learning.
- Perhaps you're struggling, yet you're succeeding and I can see your growth.
- I appreciate your perseverance and your hard work, that's going to pay.

• Encourage them when they succeed.

- Compared to _____ (time period), you are really making progress, you grew up.
- I notice you're using your problem-solving strategies and I find them great.
- Your hard work is really noticeable in the finished projects/assignments.

• Invite them to think about their own thinking and learning.

 Encourage students to reflect on their thinking and learning, as they progress through the learning process. This is beneficial to help students link certain strategies with success.

- Hey, that is a difficult task that you've been working on for quite some time. What strategies are you using?
- Do you see any patterns in your learning?
- Were the methods and skills you utilized for this project effective?
- How does your mindset influence your approach to work?
- When it comes to learning, what are your strengths and weaknesses?
- How can you make your learning environment better?



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FAILURE IS SUCCESS IF WE LEARN FROM IT

OOPS! LET'S CELEBRATE MISTAKES!



GROWTHMINDS



Did you know?

People with a growth mindset intentionally push themselves, so that **errors have a high learning potential to support future progress. Failure is an opportunity**, not a punishment, and the key to success is effort (Dweck, 2014).

Failure may be unpleasant even for people with growth mindset. The difference is in how they deal with it. It is important that the failure is **addressed** and **learnt from it** (Dweck, 2017).



Fun facts

In one research, seventh-graders described how they would react if they received a failing mark on an exam. Those with a **growth** mindset said they would **study more** for the next test, while those with a **fixed** mindset stated they would **study less** and seriously consider **cheating** (Dweck, 2017).

After all, **intelligence isn't that fixed**. It turns out that perseverance and effort might help students do better on intellectual tasks. Students who see intelligence as something that grows with work and difficulties are far less limited by rigid thoughts and feelings of powerlessness and frustration, compared to those with a fixed mindset (Dweck, 2006).



Powerful quote

»We haven't failed. We now know a thousand things that won't work, so we are much closer to finding what will.«

- Thomas A. Edison



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FAILURE IS SUCCESS IF WE LEARN FROM IT

OOPS! LET'S CELEBRATE MISTAKES!



GROWTHMINDS



What can you actually do in the classroom?

- **Create a risk-free classroom climate.** Make it clear to your students that you value trying new things, thinking outside the box, trying again and again, and confronting a challenge full on. Create a classroom climate that promotes a growth-oriented learning environment in which students feel safe, supported, and comfortable taking risks. Make it clear to students that failure is not a punishment, but rather a source of learning.
- **Teach them resilience.** The ability to recover after failure is referred to as resilience. Failure's stress response is enough to cause some students stop and give up. On the other hand, students who have established a healthy resilience to challenges, have the ability to re-strategize and rebound from failure. As a professor, it is critical to model resilience. Through lecture, give examples of your own errors, their effects on you, and how you learned from them. Model the skill of reframing a situation or finding a new strategy or approach to a problem.
- **Take advantage of mistakes.** You must assist students in normalizing their mistakes and failures. If they come to you with a problem, focus on asking questions to help them find a solution rather than providing one for them. Also use the following sentences:

Mistakes are accepted here!
Mistakes are perfectly normal!
Mistakes are to be expected while you learn this.
Your mistakes allow me to assist you.
Let's create mistakes together!



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2

CHANGE YOUR WORDS!

USE GROWTH MINDSET LANGUAGE

GROWTHMINDS



Did you know?

Changing your language is one of the **most powerful methods to instill a growth mindset** in your students. Growth mindset language is more than simply the words you speak; it is a full set of beliefs that has to be put in place. **Components of growth mindset language** include **how we address failures** and **mistakes**, promote **positive self-talk**, and how we **give instructions, feedback, and praises** (Dweck, 2017).



Ask yourself this...

1. How frequently do I recognize and praise effort, strategy, and progress?
2. How do I most frequently compliment my students?
3. How do I deal with and respond to mistakes in class?
4. How do I give instructions to students?



Good example

»A new topic allows us to expand our abilities!«
»This is only the draft, you'll have plenty of chances to enhance it.«
»Today's learning objective is _____. Tomorrow, we'll continue our work and go further by focusing on _____.«



Fun fact

According to research, children who are **praised for their intelligence** learn to **value performance**, but children who are **praised for their effort** and **hard work** grow to appreciate **opportunities to learn** (Sousa, 2009).



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CHANGE YOUR WORDS!

USE GROWTH MINDSET LANGUAGE



GROWTHMINDS



What can you actually do in the classroom?

- **Be aware that your praise language is SPECIFIC, REALISTIC, and praises what students can CHANGE.**

SPECIFIC - specific praise is more meaningful and is more likely to be believed.

- ✗ That is a fabulous picture!
- ✓ I really like the way you have drawn the eyes.

REALISTIC - excessive praise can create doubts, and students are less willing to risk failure because they are afraid of falling below the high standard they have been set.

- ✗ You must be the best mathematician in your school!
- ✓ I can see how much you have practised, the progress is huge.

Praise what they can CHANGE - praising for qualities they don't have control over, such as intelligence or talent, can demotivate them. You can't try harder at something you can't change, so constantly recognize and applaud student's willingness to attempt, effort, patience, and practice.

- ✗ You are so smart!
- ✓ That was really good thinking.

- **Changing your language won't happen overnight, so be patient.** Thinking before you speak, can take a lot of energy, especially because we are used to smooth and quick communication. We suggest that you print out the examples above and keep them somewhere visible to remind you. Over time, you will internalize it. This will take time, and you will make mistakes, but this is change, and intentional change is good.



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2

ENCOURAGING POSITIVE PERSEVERANCE



JUST KEEP SWIMMING!

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Did you know?

Perseverance is described as a person's decision **to put out a high level of effort** (Bettinger et al., 2018). When confronted with a challenge, student with a growth mindset is more likely to persevere because of believing that with hard effort, perseverance and problem-solving, he may change his intelligence and skills (Dweck, 2017). Persistence **does not always mean working harder**, but it means **refusing to give up** just because something is hard (Jaffe, 2020).



Fun fact

Research showed that persistent interventions that shape students' beliefs in their ability to learn, have an **influence on students' perseverance** and **academic achievement in math, three weeks** after the interventions were implemented (Bettinger et al., 2018).



What can you actually do in the classroom?

Awareness of perseverance. We recommend that on the first day of class, you spend time discussing what it means to have tenacity, be persistent, and possess resilience. Let them share their personal experiences about how they persevered in previous years and what helped them in their motivation.

Ask students:

- Can you describe obstacle that hinders your motivation?
- What do you usually do when you hit obstacle?
- Why it is worth it to you to persevere and get through this challenging situation?

Remind them of achieving success.

For certain students keeping perseverance is a struggle, so they must always be remembered that they are capable of achieving success. Introduce to students that perseverance is not necessarily always investing more energy, but a process of not despairing in difficult situations. It is important to explain to students the options they have when encountering problems:

- They can **always ask for help** (professor or colleague).
- Provide them suitable **online resources**, where they can seek help (YouTube channels, lessons, explanations etc.).
- **Normalize the use of other resources** (not provided by you) and the fact that other paths are also right.

Team spirit helps strengthen perseverance.

A positive group spirit can be easily achieved through group activities. Make students do hard tasks together, as this raises the sense of the importance of each member. Train your class to help and support each other, throughout solving tasks and dealing with problems.

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CHALLENGING BUT REALISTIC EXPECTATIONS



RISE HIGHER!

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Did you know?

Teachers' expectations of their students **have a significant influence on their learning and growth**. By having high expectations, professors provide the message to students that they are **competent**, on the other hand, low expectations encourage students to doubt their intellectual capacity (Wagner, 2012).

Students **build a healthy self-concept** when high expectations are communicated effectively and consistently. It also provides the structure for **intrinsic motivation** and generates an effective learning environment for the student (Rist, 1971).



Ask yourself this...

1. Do I have high expectations for all of my students?
2. Do I feel that all students can succeed and accomplish their goals?



Good example

»I know you all can accomplish this, that's why I set bar high.«
»I'll be pushing you all because I know if I'm going to, you all will do wonderful work!«



What can you actually do in the classroom?

- **Create a positive classroom climate.** Not only can increasing positivity in the classroom result in a more pleasant environment for both the teacher and students, but a good classroom climate is also likely to contribute to increased learning. Through teaching, emphasize the importance of cohesiveness, harmony, and positivism.
- **Provide appropriate challenges.** Challenges should be appropriate for all students and it is important that they are not unrealistic, as this would make them feel incompetent. If you happen to misjudge the appropriate difficulty, guide and help the students to come up with the correct answer.
- **Ask open questions.** That way students will be inspired to share their own thoughts more frequently, and you will be showing that you believe in them. Open questions usually start with: **how, what, why?**
- **Rephrase questions when answers are incorrect.** This way students will be given additional opportunities to succeed, and also encourage them to think further.
- **Allow students to choose.** Give students a variety of learning activities to choose from, that will lead to higher motivation, even in students with poor performance. They should choose topics for projects, ways of presentation, use of various interactive tools etc.
- **Clear success criteria.** Set clear performance and evaluation criteria from which you do not deviate. Clearly present the criteria at the beginning of the semester.
- **Include all students.** We tend to communicate more and give more attention to students we expect more from. Constantly keep in mind that all students are important. We suggest that you make strong eye contact with all students, because teachers are more likely to make less eye contact with students for whom they have lower expectations.



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1

BREAK DOWN LEARNING GOALS

THERE'S NOTHING WRONG WITH STARTING SMALL!



GROWTHMINDS



Did you know?

Breaking down goals into **smaller**, more manageable steps, encourages students to **move forward**, and it is more **likely they will reach the bigger goals**. Smaller goals help **gain confidence** and **deepen your beliefs, encourage action, improve concentration** and **form habits** (Dweck, 2013).



What can you actually do in the classroom?

- **Flower method of breaking down learning goals for professors.**
 1. Divide the whole learning process into several main goals, which should be **clear** and have a **strong why**.
 2. Divide the big goal into 3-5 smaller goals, that are **critical** to reaching the big goal.
 3. Divide each smaller goal into even smaller **micropieces**. Add **strategies** for how you will reach those micropieces.
 4. Continue the learning process **from the outer parts, towards the centre**, to the big goal. After every smaller goal, check student's progress. This way, you make learning easier for students, and the presentation of the material is clearer and more meaningful.

We prepared an example of breaking down goals into smaller ones, based on the flower strategy (Example 1). The advantage of the flower strategy is that it visualizes smaller goals, which remind you not to rush and skip the material, but strive for the clearest and most meaningful sequence that keeps students motivated and focused, also that makes you a good goal setting model.

- **GROWTH setting approach.** Encourage students to create personal goals for themselves as part of the learning process, and teach them how to use the GROWTH setting approach:
 - G** - GOAL: What precise goal do I wish to achieve?
 - R** - REALISTIC: What specific steps will I take to achieve my goal? When, where, what, and how frequently?
 - O** - OBSTACLES: What obstacles may I face as I work to achieve my goal? How will I transform them into an opportunity?
 - W** - WHERE: Where will I seek help when I encounter obstacles?
 - T** - TRACK: How will I monitor my progress? What methods will I use to track my development?
 - H** - HABITS: What good habits do I need to develop to achieve my goal?
- **Remind students to monitor progress.** An important step is to check and monitor progress. Have students reflect on achieved or unachieved goals during the learning process. Goal setting is a meaningful activity, only when student regularly reflects on progress.
- **But don't be rigid.** Each student has a unique personality and set of interests, allow them to customize their goals to their own needs. Let them know that it is not essential to exactly stick to what is provided, but that it is provided as a guideline only.



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FLOWER STRATEGY

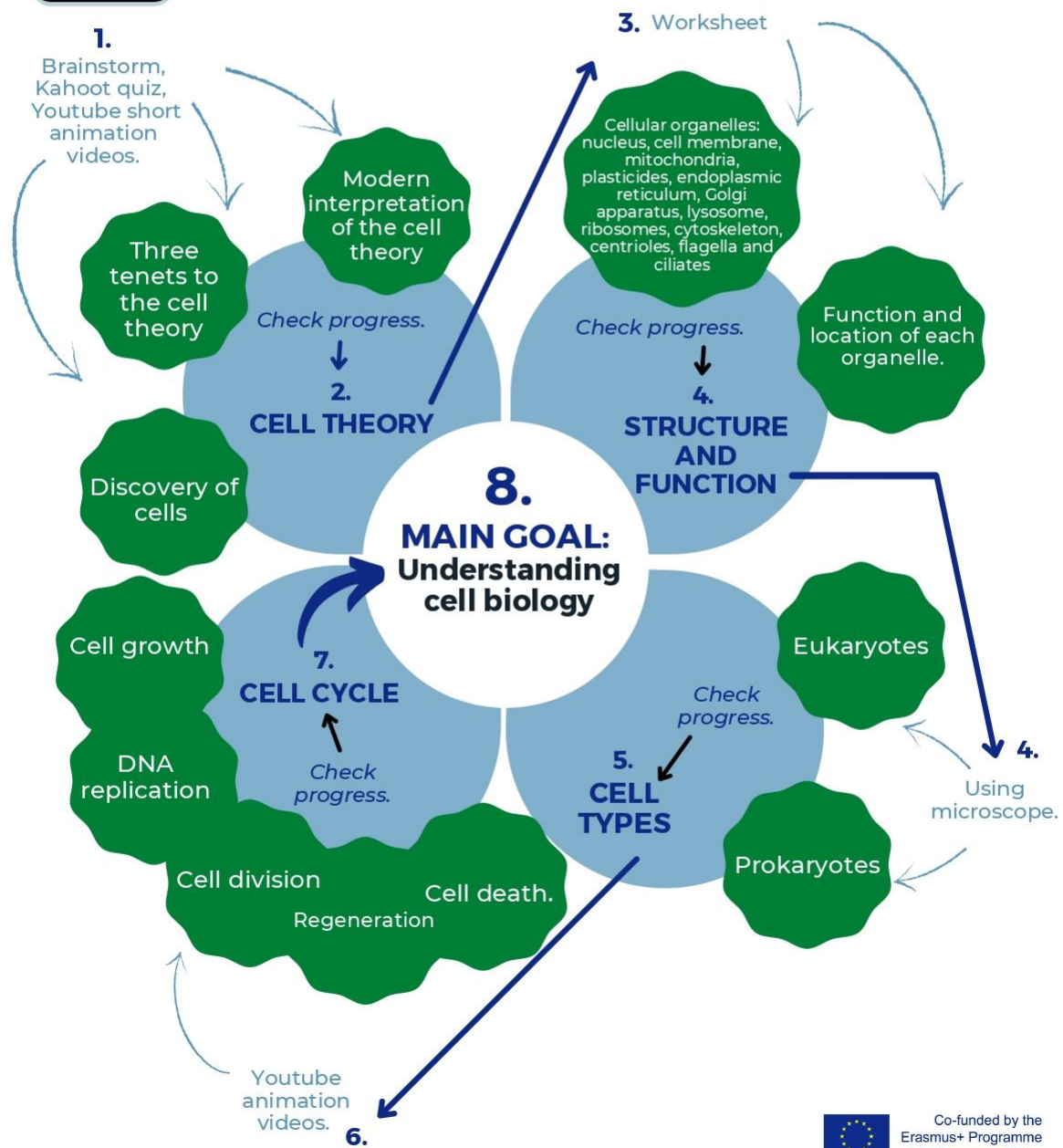
OF BREAKING DOWN GOALS



GROWTHMINDS

Begin your lesson by reaching **microgoals**, always check on students' **progress** and verify that **smaller goal** is achieved. Then move on to the next **smaller goal**, and so on, until you reach **the main goal**.

START



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PROCESS-ORIENTED FEEDBACK

MASTERING THE ART OF FEEDBACK



GROWTHMINDS



Did you know?

The messages you provide **affect** what **students believe about themselves** and consequently **how they learn**. It is important to change feedback from one that praise intelligence to one that **praise effort and progress** (Dweck, 2006). The student's technique for spotting mistakes is process oriented-feedback provided by professor, which is also critical for the growth mindset (Hattie & Timperley, 2007). **Feedback** that is **frequent** and **in time**, is beneficial to long-term memory and reasoning development (Van de Bergh et al., 2014).



Ask yourself this...

1. Do I give feedbacks that are praising students' process or praising their characteristic and attributes?
2. Do I give more oral or written feedbacks?
3. How students react to my feedbacks?



What can you actually do in the classroom?

• Person vs. Process Feedback

Person: directing praise or critique at the person. It doesn't matter if the label is positive or negative, both can negatively affect their identity.	Process: focusing our praise or critique on the effort and methods used to complete the process.
YOU are so smart.	I admire how you used a variety of techniques to solve these issues.
YOU are just not good enough.	You didn't achieve your goal, but what did you learn from that?
YOU really messed this up.	This did not show up to work out for you. What are some alternative approaches you might take to this problem?



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PROCESS-ORIENTED FEEDBACK

MASTERING THE ART OF FEEDBACK



GROWTHMINDS



What can you actually do in the classroom?

- **Often use oral information.** It is important that feedback is frequent and in time, and this is easier to maintain with oral than written feedback. Such communication is also more personal and less formal, which creates a positive classroom climate.
When struggling despite great effort. - I admire your persistence and I appreciate your hard work. It will pay off.
When they make progress. - I see you employing your strategies, notes etc. Keep up the good work! - Hey! You worked on this for a long time and didn't give up!
When succeeding with great effort. - I'd like you to recall how difficult this was when you first started. Take a look at how far you've progressed!
- **The chain of strengths.** Maintain a learning atmosphere in which peer feedback is considered normal and welcomed. You want to create a trusting learning environment where students may freely express themselves and support one another. Teach pupils about the FRUS peer feedback idea:
F - fair
R - realistic
U - useful
S - specific
- **The learning process itself as feedback.** You can include activities in the learning process that give students indirect and ongoing feedback. Let's say an introductory quiz about what they know about a particular topic, or at the end of a lesson as a point quiz (e.g. Kahoot, Quizizz, Mentimeter, Slido).



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2

ENCOURAGING POSITIVE SELF-TALK

THE POWER OF THOUGHT



GROWTHMINDS



Did you know?

Teachers have the potential to help students use the power of their inner speech to engage in positive self-talk and shift their mindset to growth mindset (Dweck, 2017). **Positive self-talk** helps them **develop** important **skills** and the **confidence** needed to succeed in learning (Robinson, 2017).



Good examples of students positive-self talk

- »I will tackle this problem until it is solved.«
- »I am a problem solver.«
- »I will not give up easily.«
- »I can do difficult things.«



What can you actually do in the classroom?

- **Recognize students' negative self-talk.**

I am not good at this.
I do not understand this.
I can not do this.
It's too difficult.
I give up.

- **Use a catchphrase.** And teach them to hear their own negative self-talk. We can help students who feel they are slipping into their fixed mindset by becoming aware of their negative self-talk by humorously addressing their self-talk and thus getting them back on the path to a growth mindset. When you notice negative self-talk, you can greet their inner voice: »Hi, Silly. Are you in his head again? We don't need you here.«

- **From negative to a positive.** The next step is to teach students to replace fixed thoughts with growth mindset statements. The first stage is to identify negative self-talk, and then provide a concrete example of positive self-talk.

What am I missing?
I'm going to use some of the techniques we studied.
I'm not finished yet.
This is something I'm capable of.

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ENCOURAGING POSITIVE SELF-TALK

THE POWER OF THOUGHT



GROWTHMINDS



What can you actually do in the classroom?

- **End student's negative self-talk statement with »yet«.** Pay attention to situations in which pupils receive a poor grade, are unable to complete an assignment or difficult tasks where they are more likely to give up.
- **Be a good example.** Your self-talk as a teacher may affect the way you handle situations and consequently affect students' self-talk. Rather than criticizing someone, you look for methods to help them. Instead of giving up on somebody, you think up a new strategy for dealing with the problem. When talking to yourself and to students, practice applying positive thinking skills openly. Positive thoughts in the morning, such as »Today is going to be a great day« or »I'm ready for whatever the day gives me« are great ways to awaken your positive self-talk and optimism, which is often contagious and essential for positive self-talk.
- **Wrapping lesson with positive self-talk.** At the end of a lesson, encourage students to answer two questions:
 1. **In our class today, what did you shine at?**
 2. **What steps did you take to improve our time together?**

Students will learn to focus on their own skills and abilities by answering these questions. They will be teaching their minds to think positively about themselves and their abilities.



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2

SENSE OF PURPOSE

WHAT GIVES STUDENTS MEANING?



GROWTHMINDS



Did you know?

Purpose is a consistent and generalized drive to do something that is both **meaningful to the self** and **significant to the outside world** (Damon et al., 2003). Students with a **strong sense of purpose** are **more engaged in academic activities**, have more **efficient study habits**, and **achieve greater academic success** (Xerri et al., 2018).



Ask yourself this...

1. Are you aiming to provide students with an education that will give them with a sense of life's meaning?
2. Do you incorporate the real world into your learning (examples of good practice, important people, companies, etc.)?



What can you actually do in the classroom?

- **The first step is you.** You need to find and become aware of your purpose and passion at work. Why? Because it will also affect students. Know exactly what motivates you, analyse your personal goals and strive to achieve them. Discover ways you can improve your learning processes and consequently help make your university better.
- **Promote curiosity.** Focus on developing curiosity in your classrooms to assist students discover what they are interested in and what inspires them. You achieve this by exposing students to a wide range of topics, high expectations, appropriate growth mindset language and positive classroom climate.
- **Be mentor and model.** Have high expectations of your students, but still offer them support. Support should be in the form of mentoring, where you lead them to a solution, and at the same time include your life experiences from which they will be able to extract a sense of purpose. Mentoring is more informal and relational in nature than teaching.



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SENSE OF PURPOSE

WHAT GIVES STUDENTS MEANING?



GROWTHMINDS



What can you actually do in the classroom?

- **Connect to the real world.** Remind them that education is closer to the reality of their lives than they might think. To bridge the gap between the classroom and real life, get students interested in real-world issues and teach them about inspiring individuals. If possible, present the real world to students as often as possible, especially in programs where there is not much practice during the years of studying. You can take them to companies, institutions etc., so they can see real-life problems and their dynamic of solving problems.
- **Give students voice and choice.** Students gain a sense of importance and meaning from their capacity to push boundaries and make changes. Allow them to do this by emphasizing the importance of their feedbacks on the learning process, moreover, you can choose a dedicated hour for individual or group conversations about the changes. Support students to join and participate in the student committee because it allows them to see how powerful they are in making a difference for the causes they care about.
- **Learn about inspirational people.** In learning process include talking about important historical personalities who have accomplished a lot, as well as still-living influential people who are pushing the boundaries, and also successful former university students. You can also invite guest speakers to give lecture to students.



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How to recognise students with fixed and growth mindsets?

By Maja Lebeničnik

Mindsets that students have about their intellectual abilities are especially important in educational settings. Beliefs, whether their intellectual abilities are fixed and immutable (fixed mindset) or something one can further develop and change (growth mindset), impact students' learning decisions, goals, motivation, self-confidence and subsequently their learning achievements.

In certain situations, teachers are able to more clearly recognise whether their students have a fixed or a growth mindset. Students with different mindsets act differently when encountering:

A challenge: Students with a fixed mindset often decide to not start new challenges or choose easier challenges with lower chances of failure. Students with a growth mindset choose more difficult challenges from which they can learn something new. Students with a growth mindset are not as averse to a possible failure as much as students with a fixed mindset.

A setback: Facing setbacks in the learning process substantially lower learning motivation of students with a fixed mindset. Because having difficulties while learning, not learning fast enough and having to put in an additional effort represents for students with fixed mindset a sign of the lack of abilities. Students with a growth mindset on the other hand understand that sometimes obstacles and delays are normal in the process of learning and that effort and trying are essential parts of goal attainment.

A failure: If a student has a fixed mindset, experiencing a failure affects a person's self-worth. Failures and mistakes make students with fixed mindset feel 'stupid', 'not talented' or 'not suitable for something'. Also, they are more prone to blame others for their own non-success (e.g. teacher). Students with a growth mindset may also be upset with failure but take responsibility for their own learning and interpret a failure more as an opportunity to learn from past mistakes.

A criticism: Students with a fixed mindset act in a defensive way when receiving a criticism, even if it is a constructive one. Instead of reflecting on the given feedback, they often do not accept the criticism or may devalue the person giving a criticism. Students with a growth mindset on the other hand do not feel threatened by criticism and are willing to reflect and learn from constructive feedback.

Teachers may also observe that students with growth mindset

- put a lot of effort in learning: trying harder, longer and in different ways to achieve goals;
- enjoy learning;

- use more diverse and efficient learning strategies;
- focus more on improving themselves than on competing with others;
- are prepared to change something in their learning process if needed
- have more stable self-confidence, not related to their achievements (do not need to feel superior to others)
- do not work to protect their ego (e.g. blaming others, not even starting with a task etc.)

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Theories underlying indicators for growth/fixed mindset evaluation

By Barbara Hanfstingl, Samuel Hafner, Gertraud Benke

In the following, we describe some theories and approaches that are strongly associated with growth versus fixed mindset in the literature. We see 1. attributional style and 2. achievement goal orientation as key components of the mindset. In addition, in literature we found relationships with 3. beliefs about mindset and cognitive functioning, we also want to regard them as crucial for the development of indicators. Last but not least, we argue that we need indicators describing environmental aspects associated with growth mindset and found them in 4. self-determination theory. Although in empirical research the influence goes from mindset to these topics, we argue that it is an interaction between mindset and them.

Attributional Style

Attributional style refers to the ways how people explain to themselves the cause of events and behaviour. These causal inferences impact a person's feelings, perceptions, and behaviour (Weiner, 2010). A person's mindset indicates what the cause of a success or failure is attributed to (Dweck, 2000). Moreover, the adaptive function of a growth mindset in light of failure can be related to a person's attribution. (Diener & Dweck, 1978; Dweck, 1975; Dweck & Reppucci, 1973; Hong et al., 1999). (Leighton & Terrell, 2020; Song et al., 2019).

Attributions have three causal dimensions (1) the locus dimension describes whether the cause is internal or external, (2) the stability dimension describes the source of the cause is something stable or variable over a period of time, and (3) the controllability dimension describes the degree to which a person can control the cause. These dimensions are distinct from actual causes of failure themselves (e.g., effort, ability, task difficulty, and luck). Dweck and Leggett (1988) regarded controllability as key to explaining the positive function of mindset in failure situation. growth mindset increases the perception of controllability of a failure cause, which helps students overcome difficulties or failures. (Song et al., 2019)

In our opinion, attribution style dimensions could be clear indicators for reviewing instructional materials on growth mindset: (1) internal locus of control, (2) variability over time, and (3) the conviction that something is controllable by myself is associated with growth mindset. Contrary, external locus of control, stability over time, and the conviction that something is not controllable by myself is connected to fixed mindset.

Achievement Goal Orientation

Achievement goals are self-regulatory commitments that provide direction to individuals as they interpret and respond to competence-relevant situations. Student behaviors may vary in learning depending on the type of achievement goal being addressed. The pursuit of achievement goals

can be divided into two distinct orientations that are qualitatively different from each other: Mastery goals and performance goals. Whereas mastery goals focus on developing one's skills, performance goals focus on demonstrating that one's skills are superior to those of others (Dweck, 1986; Nicholls, 1984). Students pursuing mastery goals are more likely to seek challenges, are intrinsically rather than extrinsically motivated, and show more stamina after failure, while students who pursue achievement goals are more inclined to avoid challenges and are prone to failure (Dweck & Leggett, 1988; Nicholls, 1989; Sommet & Elliot, 2020; Song et al., 2019).

For example, people with a performance goal view the exertion of effort negatively, often avoid challenges, and seek tasks at a level of difficulty where they are confident of success, while people with a learning goal view exertion positively and seek challenging tasks regardless of whether they expect to succeed (Elliott & Dweck, 1988). The mastery-oriented learning style seen in people who have a growth mindset is beneficial to learning in many ways. It attracts people to challenging situations where they can develop new abilities and leads them to work with greater effort, persistence, and effectiveness. Because people with a growth mindset view effort to be positively related to success, they are also more likely to take steps to improve in areas where their own performance is currently lacking (Hong et al., 1999). (Hallahan, 2020)

Thus, as second theory underlying the growth mindset indicators we argue to use the achievement goal theory for our purpose (e.g., Elliot & McGregor, 2001). Best practice examples that foster growth mindset are learning goal oriented, performance goals usually are associated to fixed mindset.

In addition to attribution theory and achievement goal theory, we argue to take up certain beliefs about our minds that deal with how our memory and brain work (metacognitive competencies; e.g., Mok et al., 2007), but also beliefs about neuroplasticity. Those beliefs are not crucial for indicating best practice examples for growth mindset, but they foster growth-mindset on a science base: The more I know about my cognitive functioning and neuroplasticity, the more growth mindset is natural for my worldview.

Beliefs about mindset / metacognition (how does memory/the brain work?)

Mindset: Implicit theories (or implicit beliefs) of intelligence are deeply held perspectives about intelligence, competence, and ability that impact individuals' motivation, engagement, and achievement. People vary in the degree to which they believe these capacities have the potential to change. Accordingly, some people hold the view that they are bound to particular abilities (entity theory, while others believe that their abilities can develop (incremental theory). Our mindset influences how we think, what tasks we choose for ourselves, our resilience and adaptability, our task engagement and enjoyment, our goals, our persistence, and our attribution styles. Consequently, these implicit beliefs have effects on important outcomes throughout an individual's life – including through their academic life. (Martin et al., 2020)



Metacognition: Metacognition is frequently defined as “knowing about knowing” or “thinking about thinking.” Highly developed metacognitive skills are associated with good academic performance. A student with greater metacognitive awareness is better able to effectively regulate and evaluate his or her learning, for example, because he or she can select the learning strategy that is most likely to improve learning and memory. Metacognition is comprised of two essential processes: monitoring and control. Monitoring refers to people’s ability to assess their own learning, while control refers to the way in which they regulate their learning using the information acquired through monitoring. (Higham et al., 2020)

Neuroplasticity: Brain plasticity or neuroplasticity is the inherent capacity of the brain to form new neural connections throughout life (Kania et al., 2017). Initially, neuroplasticity was thought to manifest only in childhood, but in the second half of the 20th century, research showed that many aspects of the brain can also be altered in later life (Rakic, 2002).

Last but not least, we want to add self-determination theory because it emphasizes the role of motivation and personality and, more important, it shows how much attention must be paid to fulfillment of basic psychological needs. Thus, in addition to the upper three points, we need to focus also to which an environment is able to promote or indicate a growth mindset.

Self-determination theory

Self-determination theory (SDT) is a theory of motivation and personality that addresses how the individual interacts with and is dependent on the social environment. SDT defines intrinsic and several types of extrinsic motivation and outlines how these motivations influence situational responses in different domains, as well as social and cognitive development and personality. The basic psychological needs of autonomy (the need to feel free and self-determined), competence (the need to feel effective), and social relatedness (the need to connect closely with others) and their role in self-determined motivation, well-being, and growth are at the core of SDT. It describes the critical impact of the social and cultural context in either facilitating or thwarting people’s basic psychological needs, perceived sense of self-direction, performance, and well-being. (Legault, 2020) The more the three psychological needs are fulfilled, the more students can develop autonomous motivations.

Growth mindset promotes self-determined motivations, while fixed mindset promotes controlled motivations (Dweck & Leggett, 1988). So, we argue to include self-determination as a further theory for the construction of indicators for best practices examples: If an example – in addition to other indicators – promotes the fulfillment of one or more basic psychological needs, it should be considered a best practice example.

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Growth mindset indicators

Barbara Hanfstingl, Samuel Hafner, Gertraud Benke

The following indicators are a result of studying theories and that are strongly associated with growth versus fixed mindset in the literature. If a teaching activity fulfils many of these indicators, it should be considered a best practice example. However, mind that rarely will it be possible to address all in one situation – which should also not be the purpose of these indicators.

Indicator 1: The primary focus of the activity is on developing student’s skills and competencies, as opposed to just letting them demonstrate their skills and competencies.

Indicator 2: The activity provides information about effective learning strategies, and on how to effectively regulate and evaluate learning.

Indicator 3: The activity provides scientific information about neuroplasticity (i.e. the inherent capacity of the brain to form new neural connections throughout life).

Indicator 4: The activity fosters the belief that success is controllable by the student and dependent on their efforts.

Indicator 5: The activity offers different choices to students and thus supports students’ need for autonomy, i.e. they can feel free and self-determined.

Indicator 6: The activity provides structure and feedback that makes students aware that they have learned something and helps them experience their newly acquired competence.

Indicator 7: The activity supports students’ need for feeling significant to others and connecting to others.

Indicator 8: The activity aims at fostering students’ process-focused thinking.

The Perils and Promises of Praise

Samuel Hafner

“The wrong kind of praise creates self-defeating behavior.

The right kind motivates students to learn.”

Carol Dweck (2007b)

What educators say and do can have a big impact on students and their motivation and performance. This is especially true of praise. In her article, “The Perils and Promises of Praise”, Carol Dweck describes two common misconceptions that have negative and even harmful effects: (1) praising intelligence promotes self-confidence and raises learners’ motivation and (2) achievement is mainly caused by the students’ intelligence. Several studies have observed the same results in different age groups and ethnic and social groups: Although praise of intelligence has short-term positive effects, there are significant negative effects in the long term.

Praise in itself can be a very powerful tool. If praise is used correctly, students develop into adults who appreciate intellectual challenges and also know how to deal with setbacks. On the other hand, “wrong” praise can be harmful: Instead of encouraging students, it causes them to become passive and dependent on the opinions of others.

To understand the effects of praise, it is necessary to examine what Dweck refers to as the “two faces of effort” (Dweck, 2007b) in relation to mindset theory. People with a fixed mindset tend to be afraid of effort. They assume that if they have to invest a lot of effort to achieve something, they are not smart enough. They believe that if they possessed the necessary ability, they should not need effort. Dweck calls this “one of the worst beliefs that students can hold” (Dweck 2007b), causing even competent students to give up or withdraw.

Dweck illustrates this with a hypothetical situation:

Let’s get inside the head of a student with a fixed mindset as he sits in his classroom, confronted with algebra for the first time. Up until then, he has breezed through math. Even when he barely paid attention in class and skimmed on his homework, he always got As. But this is different. It’s hard. The student feels anxious and thinks, “What if I’m not as good at math as I thought? What if other kids understand it and I don’t?” At some level, he realizes that he has two choices: try hard, or turn off. His interest in math begins to wane, and his attention wanders. He tells himself, “Who cares about this stuff? It’s for nerds. I could do it if I wanted to, but it’s so boring. You don’t see CEOs and sports stars solving for x and y .” (Dweck, 2007b)

By contrast, individuals holding a growth mindset are interested in learning and improving, they believe “in the utility of effort versus the futility of effort given difficulty or low ability” (Blackwell, Trzesniewski, & Dweck, 2007). They are interested in learning from mistakes; they see mistakes

as an opportunity to learn not as a sign of failure. They view effort as something positive as it challenges them and causes them to grow.

Again, Dweck describes a hypothetical situation to emphasize her point:

Let's look at another student – one who has a growth mindset – having her first encounter with algebra. She finds it new, hard, and confusing, unlike anything else she has ever learned. But she's determined to understand it. She listens to everything the teacher says, asks the teacher questions after class, and takes her textbook home and reads the chapter over twice. As she begins to get it, she feels exhilarated. A new world of math opens up for her. (Dweck, 2007b)

When examining the effects of praise, one has to distinguish between two types, person-related and process-related praise, and consider them in relation to Dweck's theory of fixed and growth mindsets.

Person-related praise is a comment that evaluates and judges a person and is based on certain behaviour, performance or ability, e.g., "You are intelligent" or "You did that well". Students who receive this kind of praise develop a fixed mindset. The focus is only put on the end product, regardless of how it was achieved. This creates the impression that the students are equipped with talents and deficits that they cannot do anything about, and as a result, they develop a negative image of effort. This leads them to believe that effort is ineffective because skills and talents cannot be improved and that effort is a sign of a lack of intelligence. In a study by Mueller and Dweck, the researchers observed that students who were praised for their intelligence tended to reject challenges through which they could learn something new, and instead were more likely to work on tasks in which they could show the skills they already had and thus appear intelligent. The researchers also noted that this type of praise leads students to become vulnerable to future setbacks.

Process-related praise focuses on a person's effort, actions and persistence. Examples include "You worked really hard for this good result" or "I can see that you studied a lot for this achievement." When students are praised for their effort, it leads them to develop a growth mindset. By focusing praise on the process and the path that led to the result, a positive connotation to effort is built. It also makes it clear that failure does not equate to not being smart enough, but that one needs to try harder and/or develop new learning strategies. In Mueller and Dweck's study, children who received process-related praise even chose tasks that promised further learning opportunities over those where they could show what they had already mastered.

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“I am not a math person” – Changing your attitude towards math through the free online student course “How to learn Math”

Samuel Hafner

“I’m not good at math.” “I’m not a math person.” Many educators have probably heard these lines or a variation of them. You may have even heard this idea reinforced by parents and other educators. Stanford professor Jo Boaler very much rejects this idea as she explains in her TEDx speech “How you can be good at math, and other surprising facts about learning” (<https://youtu.be/3icoSeGqQtY>):

“And I’m here to tell you that idea is completely wrong, it is disproven by the brain science. But it is fuelled by a single myth that’s out there in our society that’s very strong and very dangerous. And the myth is that there’s such a thing as a math brain, that you’re born with one, or you’re not. We don’t believe this about other subjects. We don’t think we’re born with a history brain, or a physics brain. We think you have to learn those. But with math, people, students believe it, teachers believe it, parents believe it. And until we change that single myth, we will continue to have widespread underachievement in this country.”

Jo Boaler research is very much focused on the connection between mathematics and growth mindset and also changing the mathematics classroom to promote a growth mindset. She developed and taught the first Massive Online Open Course (MOOC) on mathematics education, called “How to Learn Math”. The purpose of this free course is to provide students of all levels of mathematics with the necessary information to become powerful math learners, correct any misconceptions about what math is, and teach them about their own potential to succeed. In essence, the course is designed to move the learners towards a growth mindset in mathematics which has been proven to increase achievement. Some of the key ideas in the course are:

Everyone can learn mathematics to high levels

Mistakes, challenge and struggle are the best times for brain growth

Depth of thinking is more important than speed

Mathematics is a creative and beautiful subject

Good strategies for learning mathematics including talking and drawing

Mathematics is all around us in life and is important

More information on the course can be found at <https://www.youcubed.org/online-student-course/>.



Boaler and her colleagues also investigated the impact of this course and published their results (see sources below). In short, they found out that the treatment group who took the online course reported more positive beliefs about math, engaged more deeply in math in class, and achieved at significantly higher levels on standardized mathematics assessments.

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GM CURRICULUM

This section includes Growthminds continuous professional development (CPD) course curriculum learning outcome matrix (LOM) for tertiary level educators.

Module 1: Mindset Theory and Mindset in Higher Education

LEARNING OUTCOMES: On completion of this course, the participants will be able to...				
	Knowledge and understanding	Skills and competences	Content (Module outline)	Teaching methods and activities
Mindset Theory and Mindset in Higher Education	<ul style="list-style-type: none"> -define the concept of mindset -describe the difference between growth and fixed mindset -know various interventions for changing mindsets -explain how and why teacher's mindset effects teacher's practices -explain how and why students' mindset effects students' academic motivation and achievement -make connections between their previous teaching experiences and their mindset -discuss the indicators of teaching activities, that support growth mindset -know characteristics of the class environment that support growth mindset 	<ul style="list-style-type: none"> -recognize thoughts and behaviors, related to fixed or growth mindset in oneself and in their students -reflect on their own beliefs regarding the nature of abilities, importance of effort and perseverance, meaning of failures, attitudes towards mistakes... -become self-aware of own mindset about different abilities -pay attention to the elements of teaching activities and class environment, supporting growth mindset 	<ul style="list-style-type: none"> Mindset Theory -Fixed and Growth mindset -Mindset -Academic motivation and achievements -Common misconceptions -Interventions Mindset and higher education -Teachers' mindset (intelligence, creativity, math skills, teaching abilities...) -Higher education students' mindset (development, behavior...) Mindset and higher education teaching -Indicators of teaching activities, supporting growth mindset -GM-supportive class environment (demanding, challenging, nurturing) 	<ul style="list-style-type: none"> Lecture, discussion, multimedia, quizzes, self-assessment self-directed learning

Module 2: The Nature of Brains, Intelligence

LEARNING OUTCOMES: On completion of this course, the participants will be able to...				
	Knowledge and understanding	Skills and competences	Content (Module outline)	Teaching methods and activities
The Nature of Brains, Intelligence	<ul style="list-style-type: none"> -understands the continuing processes of maturation of brains after the birth -knows the concept of the neuroplasticity -knows different types of intelligence -understands the role of learning, education and environment in the development of the intellectual abilities -understand the normative development of cognitive abilities (intelligence, creativity, wisdom) over lifespan -recognize the intelligence as only one of the predictors of the academic success -understand the concept of the creative process 	<ul style="list-style-type: none"> -provide basic information regarding the neuroplasticity to students -support students in creative process 	<ul style="list-style-type: none"> -Brain's development after the birth: the processes of maturation and learning -The plasticity of brains -Intelligence: one, two... or more of them? (general intelligence; crystalized and fluid intelligence; analytical, creative and practical intelligence) -The development of the intelligence and other cognitive abilities (creativity, wisdom) over the lifespan -Academic achievement: intelligence and other predictors -Creativity: ability and process; everyday creativity 	<ul style="list-style-type: none"> Lecture, discussion, multimedia, quizzes, self-assessment self-directed learning

Module 3: Growth Mindset Language

LEARNING OUTCOMES: On completion of this course, the participants will be able to...				
	Knowledge and understanding	Skills and competences	Content (Module outline)	Teaching methods and activities
Growth Mindset Language	<p>raise awareness how they reflect their mindset through their everyday language patterns</p> <ul style="list-style-type: none"> -understand the difference between labelling students and focusing on learning process -recognize how educators' expectations shape students' motivation, effort and mindset -understand the role of positive self-talk in developing growth mindset -recognize different forms of feedback in relation to mindset 	<ul style="list-style-type: none"> -use language patterns which supports the growth mindset of students -frame mistakes, failures, effort, and learning strategies into growth mindset framework -practice process-oriented feedback -remind students about the connection between growth mindset and learning success -encourage students with examples of positive self-talk 	<ul style="list-style-type: none"> -growth mindset language patterns -from labelling to learning process -communicating high expectations to all students -growth mindset feedback -growth mindset framing -positive self-talk -brain growth conversation in teaching practice 	<p>Lecture, discussion, multimedia, quizzes, self-assessment, group activities, peer coaching.</p>

Module 4: Growth Mindset Tasks

LEARNING OUTCOMES: On completion of this course, the participants will be able to...				
	Knowledge and understanding	Skills and competences	Content (Module outline)	Teaching methods and activities
Growth Mindset Tasks	<ul style="list-style-type: none"> -recognize which tasks support a growth mindset of students -understand what exactly benefits students' growth mindset in specific tasks -understand the role of mistakes, deliberate practice, challenges, desirable difficulty, choice, learning goals, step-by-step learning, and multiple exposure in relation to growth mindset 	<ul style="list-style-type: none"> -design learning activities which support growth mindset of students -analyze learning activities and tasks for students from the perspective of growth mindset -use growth mindset elements in planning learning activities and tasks for students 	<ul style="list-style-type: none"> -designing learning activities and tasks to support growth mindset of students -elements of growth mindset in learning activities and tasks for students: mistakes, deliberate practice, challenges, desirable difficulty, choice, learning goals, step-by-step learning, and multiple exposure -examples of tasks, which supports growth mindset 	<ul style="list-style-type: none"> Lecture, discussion, multimedia, quizzes, self-assessment, group activities, peer coaching.

Module 5: Growth Mindset Assessment

LEARNING OUTCOMES: On completion of this course, the participants will be able to...				
	Knowledge and understanding	Skills and competences	Content (Module outline)	Teaching methods and activities
Growth Mindset Assessment	<ul style="list-style-type: none"> -recall different forms of assessment and their functions -know which forms and methods of assessment better support growth mindset and learning -understand the role of rewards and punishments for growth mindset -know what kind of feedbacks, praises and criticisms are better for growth mindset -explain the motivational value of high goals and standards 	<ul style="list-style-type: none"> -use assessment methods that support growth mindset and learning process (e.g. formative assessment, self-testing etc.) -support students overcoming the fear of failing -provide intrinsic additionally to extrinsic rewards -form growth-mindset oriented feedback, praises and criticism -set high goals and standards and stay persistent in evaluating them 	<ul style="list-style-type: none"> -Forms of assessment -Assessment for learning and growth mindset -Assessment and fear of failing -Intrinsic and extrinsic rewards -Praises and criticism -Constructive and descriptive feedback -High goals 	<ul style="list-style-type: none"> Lecture, discussion, group activities multimedia, self-directed learning

Module 6: Growth Mindset Reflection

LEARNING OUTCOMES: On completion of this course, the participants will be able to...				
	Knowledge and understanding	Skills and competences	Content (Module outline)	Teaching methods and activities
Growth Mindset Reflection	<ul style="list-style-type: none"> -make connections between mindset and perceiving the struggle and efforts of students- understands how to adequately measure progress-know about learning strategies 	<ul style="list-style-type: none"> -guide students to reflect on struggling experiences and the meaning of effort, trying different strategies, help of others...-support students to monitor their progress- guide students to reflect on their learning process (e.g. use of learning strategies, motivation etc.)- reflect their own efficacy of teaching for understanding- implement changes in their teaching practices and into teacher-student interaction to develop GM-supportive class environment 	<ul style="list-style-type: none"> Student's reflection: <ul style="list-style-type: none"> -Struggling experiences- Monitoring progress in goal acquisition -Student's learning process Teacher's reflection: <ul style="list-style-type: none"> -Teaching for understanding- GM-supportive class environment 	<ul style="list-style-type: none"> Lecture, discussion, storytelling, group activities, multimedia, self-directed learning

SELF DIRECTED LEARNING ACTIVITIES

In this section, there are examples of self-directed learning activities developed in accordance with the curriculum. With self-directed learning activities, learners can complete the curriculum using the project website and other online resources.

SDL Activity 1- Fixed and growth mindset: characteristic thoughts and behaviors (Based on Module 1)

Expected duration: 90 minutes

Materials and resources:

- Online video lecture 2018 Childx: Keynote by Carol Dweck available at: <http://www.unigrowthminds.eu/index.php/resources/>
- Article titled 'How to recognise students with fixed and growth mindset?' available at: <http://www.unigrowthminds.eu/index.php/outputs/>
- Drag and drop activity Growth Mindset vs. Fixed Mindset, available at: <http://www.unigrowthminds.eu/index.php/outputs/>

Step by step process:

1. Watch the video titled 2018 Childx: Keynote by Carol Dweck available at: <http://www.unigrowthminds.eu/index.php/resources/> (pay special attention to part: 0 – 11 minutes)
2. Read the article 'How to recognise students with fixed and growth mindset?' available at: <http://www.unigrowthminds.eu/index.php/outputs/>
3. Can you recognise people's thoughts that are indicators of a fixed mindset? How about thoughts that are characteristic of a growth mindset?
4. Check it with drag and drop activity Growth Mindset vs. Fixed Mindset available at: <http://www.unigrowthminds.eu/index.php/outputs/>
5. Fill out worksheet 'Recognising students with Fixed and Growth mindset' (below)

'Recognising students with Fixed and Growth mindset'

Imagine (or maybe try to remember) a situation where you give (gave) students an objectively very challenging task. Most students in the class have had no previous experiences with a similar type of task and many of them may find it very hard (e.g. because of the complexity or lack of



GROWTHMINDS

explicit directions for example). Try to imagine different reactions that students may have in this situation.

Try to identify different thoughts, speech and behaviors of students with different mindsets that may appear in this situation.

What student with fixed mindset would think or say in this specific situation about:

the task: _____

him/herself: _____

other students, who face the same task: _____

How student with fixed mindset would behave:

before starting the task: _____

during doing the task: _____

What student with growth mindset would think or say in this specific situation about:

the task: _____

him/herself: _____

other students, who face the same task: _____

How student with growth mindset would behave:

before starting the task: _____

during doing the task: _____

SDL Activity 2 - Self-management from the perspective of personal development (Based on Module 1)

Expected duration: 120 minutes

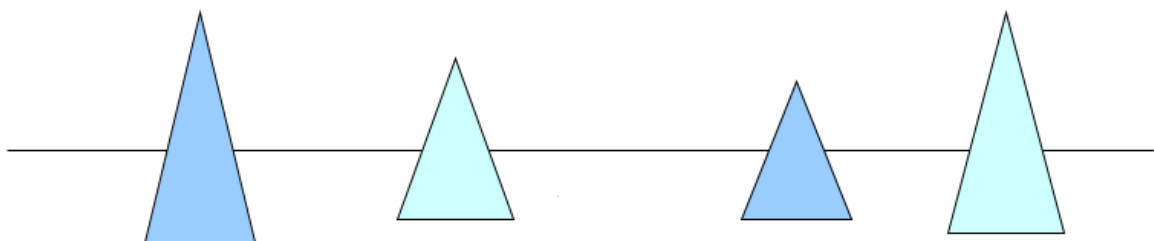
Materials and resources:

- Self Management Skills <https://www.youtube.com/watch?v=u7r0x8ktfhE&t=13s>
- What kind of mindset do you have? http://www.unigrowthminds.eu/wp-content/uploads/2021/12/Mindset_Quiz_Dweck_Adaptation.pdf self-applied quizze
- Personal route - self-applied test
- SWOT analysis – self-applied

Step by step process:

1. Watch the video titled Self Management Skills available at: <https://www.youtube.com/watch?v=u7r0x8ktfhE&t=13s>
2. Fill out the self-applied quiz What kind of mindset do you have? available at: http://www.unigrowthminds.eu/wp-content/uploads/2021/12/Mindset_Quiz_Dweck_Adaptation.pdf
3. Draw your Personal route according to the instructions bellow

Personal route, Each Participant of the group draws a line, which represents his way up to this point. On this line he is marked with the most important landmarks of his life. For each milestone he will note the acquisitions or achievements of the moment. He presents each of his personal paths, and at the end there are discussions with feed-back.



4. Personal SWOT analysis fill your own SWOT Analysis, taking into consideration the following aspects:

- strengths, qualities that recommend you
- weaknesses, aspects that disadvantage you
- opportunities – things supporting you
- threats – threats, fears, which could be obstacles for you

Strengths	Weaknesses
Opportunities	Threats

5. Comparing the self-management skills with the type of mindset resulted after going through the previous process steps, identify your own skills consistent with growth mindset elements and write them below.

.....

.....

.....

SDL Activity 3 - Neuroplasticity: the development of cognitive abilities over lifespan. Learning from inspiring examples (Based on Module 2)

Expected duration: 240 minutes

Materials and resources:

- Online video lecture What is Neuroplasticity? available at: <https://www.youtube.com/watch?v=kWIagHUqD8A>
- Online video lecture After watching this, your brain will not be the same, Lara Boyd, TEDxVancouver, available at: <https://www.youtube.com/watch?v=LNHBMFCzznE&t=480s>
- Quiz Growth Mindset & Neuroplasticity, available at: <https://quizizz.com/admin/quiz/5fa47100224f6c001bb10601/growth-mindset-neuroplasticity>

Step by step process:

1. Watch the video What is Neuroplasticity? available at: <https://www.youtube.com/watch?v=kWIagHUqD8A>
2. Watch the video After watching this, your brain will not be the same, Lara Boyd, TEDxVancouver, available at: <https://www.youtube.com/watch?v=LNHBMFCzznE&t=480s>
3. Assignment: Think of a person who inspires you and read his/her short biography. Answer the following questions:
 - What are his/her abilities and personality features (e.g. intelligence, creativity, innovation, determination, ambition, perseverance, discipline, etc.)?

.....

.....

.....

- How did these abilities and personality features evolve in time?

.....

.....

.....

4. Self-assessment: Think about a time when you overcame a struggle to learn something. and write it below. Reflect on the times when you failed at first but through persevering your brain created new neural connections and you eventually became better at the task at hand. Write down your ideas.

.....
.....
.....

5. Test your knowledge on neuroplasticity by doing the the quizz Growth Mindset & Neuroplasticity, available at:
<https://quizizz.com/admin/quiz/5fa47100224f6c001bb10601/growth-mindset-neuroplasticity>

6.

SDL Activity 4 - Neuroplasticity, the malleability of the cognitive abilities and mindset (Based on Module 2)

Expected duration: 180 minutes

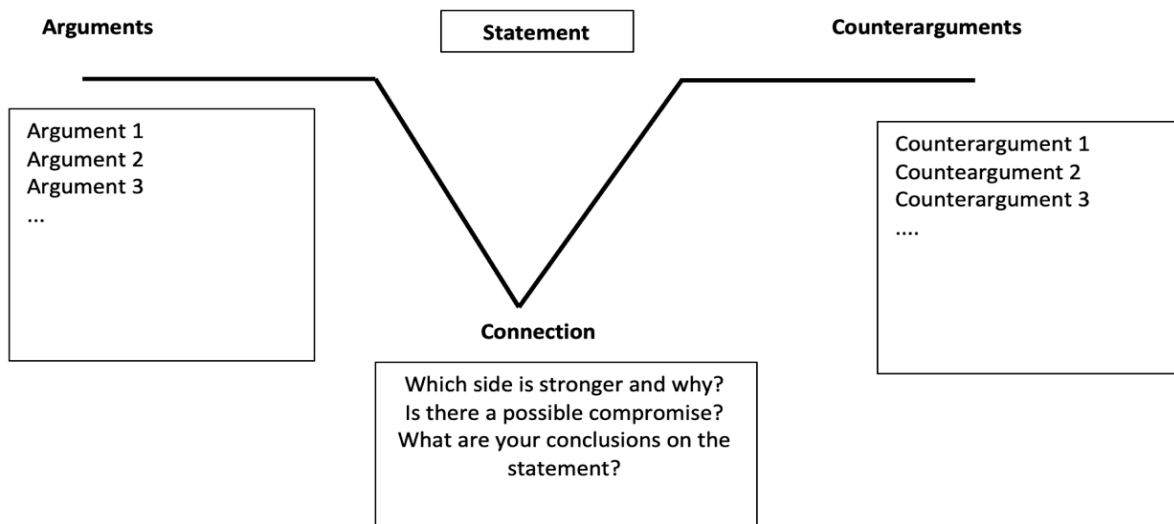
Materials and resources:

- Online video lecture: 'Why our IQ levels are higher than our grandparents?'
https://www.ted.com/talks/james_flynn_why_our_iq_levels_are_higher_than_our_grandparents
- Online video lecture: 'Growing evidence of brain plasticity'
https://www.ted.com/talks/michael_merzenich_growing_evidence_of_brain_plasticity
- Online video lecture: 'How games make kids smarter'
https://www.ted.com/talks/gabe_zichermann_how_games_make_kids_smarter
- Online video lecture: 'How your brain's executive function works -- and how to improve it'
https://www.ted.com/talks/sabine_dobel_how_your_brain_s_executive_function_works_and_how_to_improve_it
- Online video lecture: 'How does income affect childhood brain development?'
https://www.ted.com/talks/kimberly_noble_how_does_income_affect_childhood_brain_development

Step by step process:

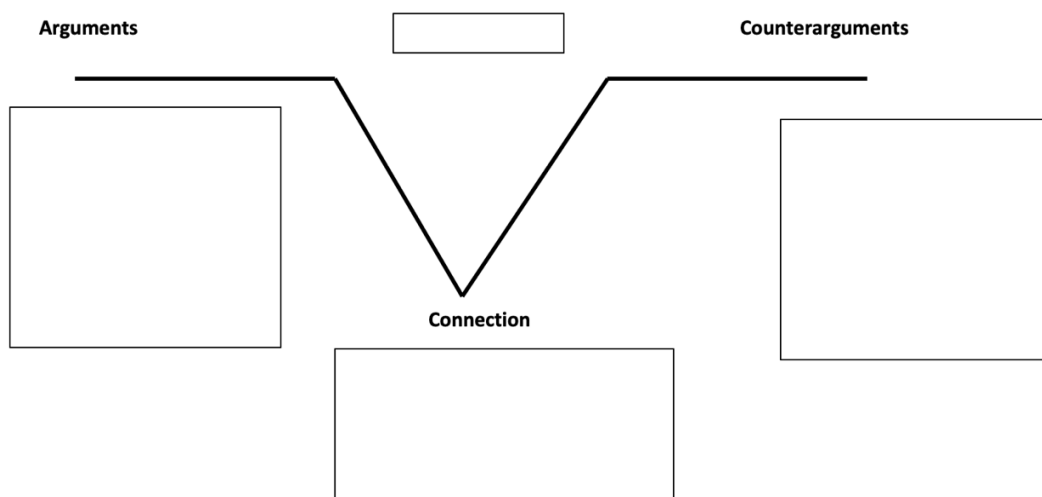
1. Watch the above listed videos where scholars discuss topics related to neuroplasticity, the (non)malleability of cognitive abilities, the role of experiences for intelligence etc.
2. While watching, try to discover arguments and counter-arguments for statements that reflect growth mindset (see the diagram below)
3. Form additional statements about neuroplasticity of brains and the malleability of cognitive abilities, reflecting growth mindset
4. Find another reliable online educational videos on similar topics and fill more diagrams

'Mindset argumentation diagram'



Examples of statements, reflecting growth mindset:

- Person can improve own cognitive abilities and functioning
- There are strategies one can use, to improve own cognitive abilities and functioning
- Learning and cognitive improving is possible during whole lifespan
- Environmental experiences (e.g. education, home environment) are important factors for the intelligence development



SDL Activity 5 - Feedback (Based on Module 3)

Expected duration: 300 minutes

Materials and resources:

- “Developing a Growth Mindset with Carol Dweck” available on <http://www.unigrowthminds.eu/index.php/resources/> (Go to the “Videos” tab)
- “Higher Education Academy Feedback Toolkit” available on <http://www.unigrowthminds.eu/index.php/resources/> (Go to the “Feedback Tools” tab)
- “Importance of Meaningful Student Feedback” available on <http://www.unigrowthminds.eu/index.php/resources/> (Go to the “Feedback Tools” tab)
- “Assessment and Feedback in Higher Education” available on <http://www.unigrowthminds.eu/index.php/resources/> (Go to the “Feedback Tools” tab)

Step by step process:

1. Watch the video “Developing a Growth Mindset with Carol Dweck” to be familiar with possible feedbacks.
2. Read the toolkit “Higher Education Academy Feedback Toolkit” available on <http://www.unigrowthminds.eu/index.php/resources/> (Go to the “Feedback Tools” tab). You will do the activity on Appendix 14 after reading the following articles.
3. Read the article “Importance of Meaningful Student Feedback” available on <http://www.unigrowthminds.eu/index.php/resources/> (Go to the “Feedback Tools” tab)
4. Read the article “Assessment and Feedback in Higher Education” available on <http://www.unigrowthminds.eu/index.php/resources/> (Go to the “Feedback Tools” tab)
5. After finishing the articles above, read the instructions of the activity on Appendix 14 on page 78 “Feedback to students would work much better for me if only I...” Then, fill in the table below on page 78 and 79.

Staff Responses	True for me ✓	Source of challenge
<i>Feedback to students would work much better for me if only I...</i>		
Thought they'd read and digest it.		
Could give them back their essays to keep.		
Thought it would make a difference.		
Was able to do it more quickly.		
Could be in the right frame of mind when meeting them face to face.		
Could be sure they would understand what I'm trying to tell them.		
Could get them to turn up to receive feedback.		
Had some expectations that they would use it to improve their next mark.		
Cared less about the judgements I make, and how to articulate these in writing.		



Could get more of them to attend workshops, and engage in the learning activities.		
Knew the students better.		
Could discuss this with my students.		
Knew them personally, and their profiles.		
Knew how to phrase it in terms students understand.		
Saw evidence of improvement as a result of that feedback.		
Knew what to say to them.		
Made more time for giving effective feedback.		
Could be clearer about why they got the grade they did.		
Knew they would read the comments and not just look at the grade.		
Could identify better what the student needs to do to improve the next piece of work – feedforward.		
Could do this as a dialogue.		
Didn't take so long over it.		
Had the chance to discuss it and explain it.		

SDL Activity 6 - Assessment for learning and growth mindset (Based on Module 5)

Expected duration: 240 minutes

Materials and resources:

- A review of literature 'Assessment and feedback in higher education' available at: <http://www.unigrowthminds.eu/index.php/resources/> Assessment Tools
- Article titled 'Assessment and feedback in higher education: considerable room for improvement?' available at: <http://www.unigrowthminds.eu/index.php/resources/> Assessment Tools
- Article titled 'Assessment for a Growth Mindset' available at: <http://www.unigrowthminds.eu/index.php/resources/> Articles
- Tools for Formative Assessment' available at: <http://www.unigrowthminds.eu/index.php/resources/> Assessment Tools
- Types of Formative Assessment available at: <http://www.unigrowthminds.eu/index.php/resources/> Assessment Tools

Step by step process:

1. Read the first two articles about assessment in higher education: "Assessment and feedback in higher education" and "Assessment and feedback in higher education: considerable room for improvement?" for general knowledge about different forms of assessment and their functions. Available at: <http://www.unigrowthminds.eu/index.php/resources/> Assessment Tools
2. Read the article Assessment for a Growth Mindset ' to gain deeper knowledge about assessment for a Growth mindset. Available at: <http://www.unigrowthminds.eu/index.php/outputs/>
3. View examples " Types of Formative Assessment" & "Tools for Formative Assessment" available at <http://www.unigrowthminds.eu/index.php/resources/> Assessment Tools.
4. Prepare an assessment material in accordance with the content of your course as in the example given below.

I Have the Question, Who Has the Answer?

The teacher makes two sets of cards. One set contains questions related to the unit of study. The second set contains the answers to the questions.

Distribute the answer cards to the students and either you or a student will read the question cards to the class. All students check their answer cards to see if they have the correct answer.

A variation is to make cards into a chain activity: The student chosen to begin the chain will read the given card aloud and then wait for the next participant to read the only card that



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would correctly follow the progression. Play continues until all the cards are read and the initial student is ready to read his card for the second time.

SDL Activity 7 - Self-awareness from the perspective of self-knowledge (Based on Module 6)

Expected duration: 120 minutes

Materials and resources:

- 11 Growth Mindset Strategies: Overcome Your Fix Mindset to Grow as a Person - YouTube
- What is Self Determination Theory? - YouTube
- Read the article 'Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being'
- Self-appreciation - self-applied quiz

Step by step process:

1. Watch the video titled 11 Growth Mindset Strategies: Overcome Your Fix Mindset to Grow as a Person available at: [11 Growth Mindset Strategies: Overcome Your Fix Mindset to Grow as a Person - YouTube](#)
2. Read the article 'Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being' available at: https://selfdeterminationtheory.org/SDT/documents/2000_RyanDeci_SDT.pdf
3. Watch the video titled What is Self Determination Theory? - YouTube available at: [What is Self Determination Theory? - YouTube](#)
1. Fill out the self-applied quiz - Self-appreciation (below)

Self-appreciation quiz

1. What positive messages about you (as a teacher) have you received from those around you?
.....
2. What negative messages about you (as a teacher) have you received from those around you?
.....
3. What messages about yourself did you receive in school?
.....
4. What factors have helped you develop your self-appreciation?
.....
5. What other factors have negatively affected your appreciation?
.....

6. What negative messages still influence you today?
.....

7. What positive messages still influence you today?
.....

Fill in the following sentences:

As a teacher, my self assessment is...

Five things I like about myself (as a teacher) are:

1.
2.
3.
4.
5.

Five things I've accomplished (as a teacher) are:

1.
2.
3.
4.
5.

Five ways I take care of myself are:

1.
2.
3.
4.
5.

A few ways I can improve my self-appreciation are:
.....

“Teaching is a
wonderful way
to learn.”

Carol S. Dweck

