21st Century Skills for Teachers and Students

Module 1

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Learning Outcomes for Tuesday

- Constructivism and Student-Centered Learning
- Active Learning Vs. Passive Learning
- A foundational mindset to welcome the 21st century skills and their development through – Growth and Fixed Mindset
- Intrinsic and Extrinsic Motivation
- M.A.P Method for Intrinsic Motivation
- Formative and Summative Assessments and Motivation
- Communication skills
- Making lessons for different skills focused purposes.

Motivation

Intrinsic and extrinsic motivation in learning.

Constructivism as a foundational element of 21st century education.

https://www.buffalo.edu/catt/develop/theory/constructivism.html

What we think it looks like:



What it actually looks like:



Passive Learning

- Reading
- Writing
- Rereading
- Reproducing the content

Active Learning

- Are actively responsible for their understanding
- Ask questions
- Searchs for patterns
- Seek to the concept significance
- Connect it to other ideas
- Debates and talks constructively about it
- Teaches the colleagues

Student-Centered Learning is all about making them responsible for their learning processes.

Passive Learning

- Reads
- Writes notes
- Rereads
- Reproduces the content
- Carefully follow the teacher’s instructions.
- Do what is expected to get a good grade.

Active Learning

- Read, asks questions, try to connect ideas.
- Decides what is important to write down, filters information.
- Make outlines and study sheets, looks for trends and patterns.
- Try to look for the significance of the assingment, for the principles and concepts it illustrates.
- Tries to expand the knowledge with experience or a concept and connect to the course and learning objectives.

Traditional Classroom	Constructivist Classroom
Curriculum begins with the parts of the whole. Emphasizes basic skills.	Curriculum emphasizes big concepts, beginning with the whole and expanding to include the parts.
Strict adherence to fixed curriculum is highly valued.	Pursuit of student questions and interests is valued.
Materials are primarily textbooks and workbooks.	Materials include primary sources of material and manipulative materials.
Learning is based on repetition.	Learning is interactive, building on what the student already knows.
Teachers disseminate information to students. Students are recipients of knowledge.	Teachers have a dialogue with students, helping students construct their own knowledge.
Teacher's role is directive, rooted in authority.	Teacher's role is interactive, rooted in negotiation.
Assessment is through testing and correct answers.	Assessment includes student works, observations and points of view, as well as tests. Process is as important as product.
Knowledge is seen as inert.	Knowledge is seen as dynamic, ever changing with our experiences.
Students work primarily alone.	Students work primarily in groups.

Traditional or Constructivist

All face the same issue:

Lack of motivation

What is at the core of motivation?

The 21st century does not only require different skills but requires a different mindset.

FIGURE 4.1. LEADING



Egalitarian The ideal distance between a boss and a subordinate is low. The best boss is a facilitator among equals. Organizational structures are flat. Communication often skips hierarchical lines.

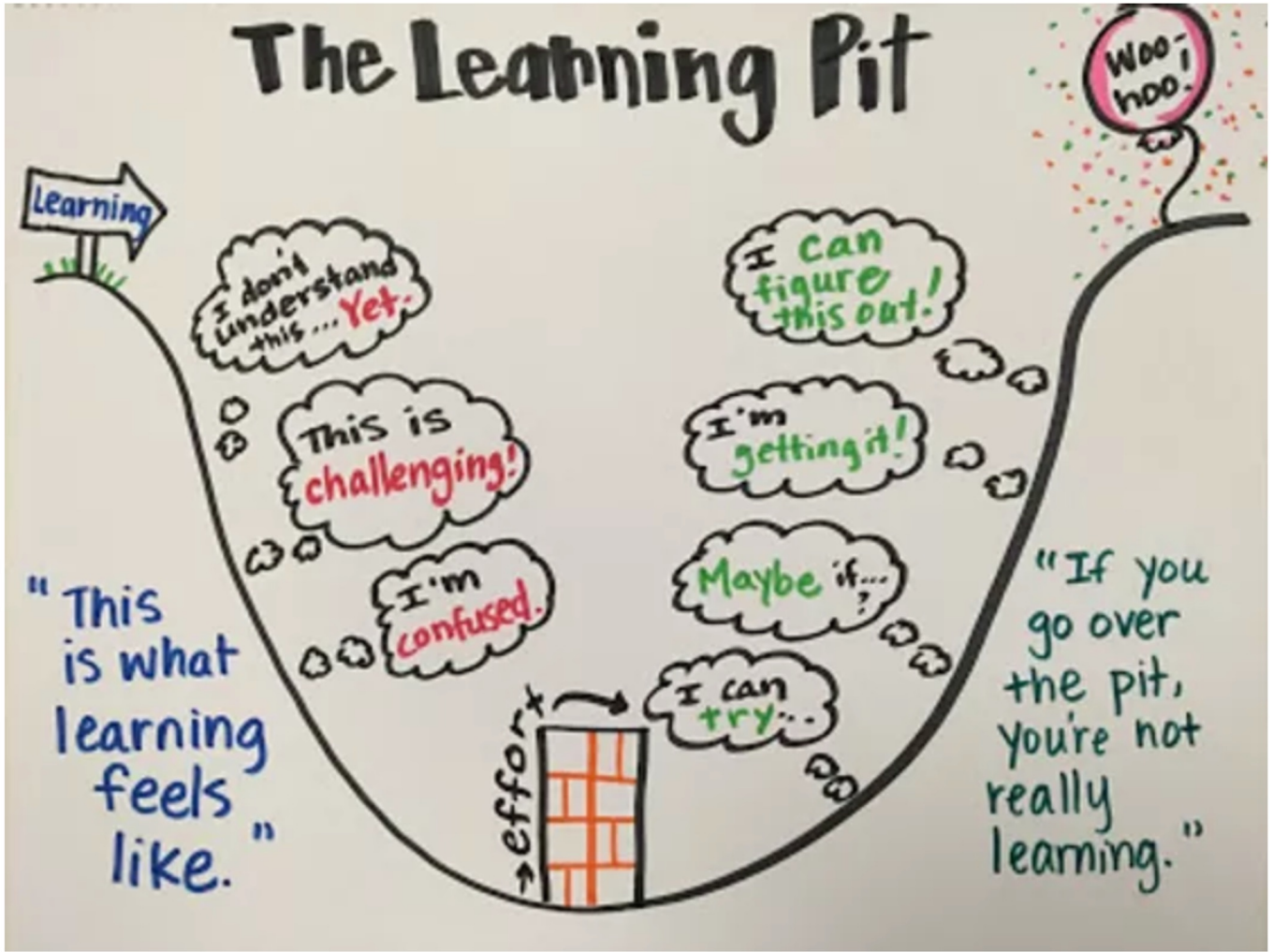
Hierarchical The ideal distance between a boss and a subordinate is high. The best boss is a strong director who leads from the front. Status is important. Organizational structures are multi-layered and fixed. Communication follows set hierarchical lines.

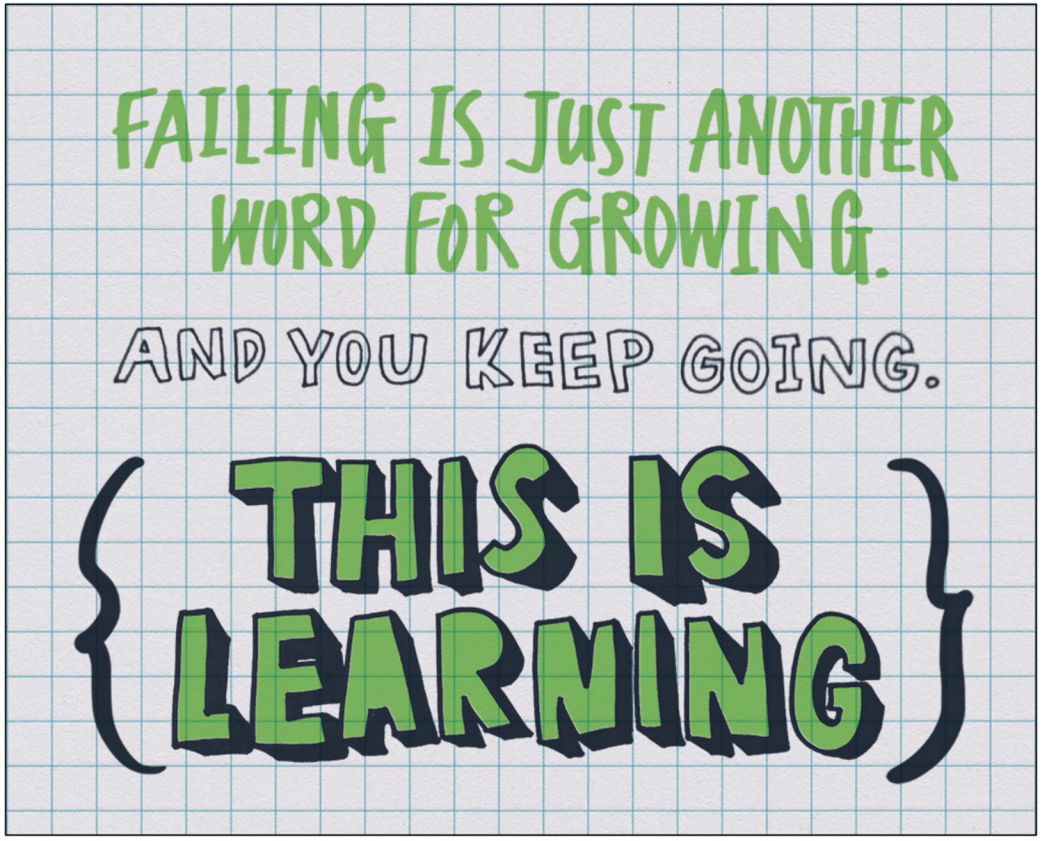
Fixed mindset

Students believe their skills, talents and overall intelligence are **fixed traits**. They may resist learning and trying to improve, typically feeling embarrassed when not understanding something.

Growth mindset

Students know they can develop their skills and talents through effort and persistence, as well as being receptive to lessons and feedback. They generally believe they **can improve through hard work and trying** new learning methods.

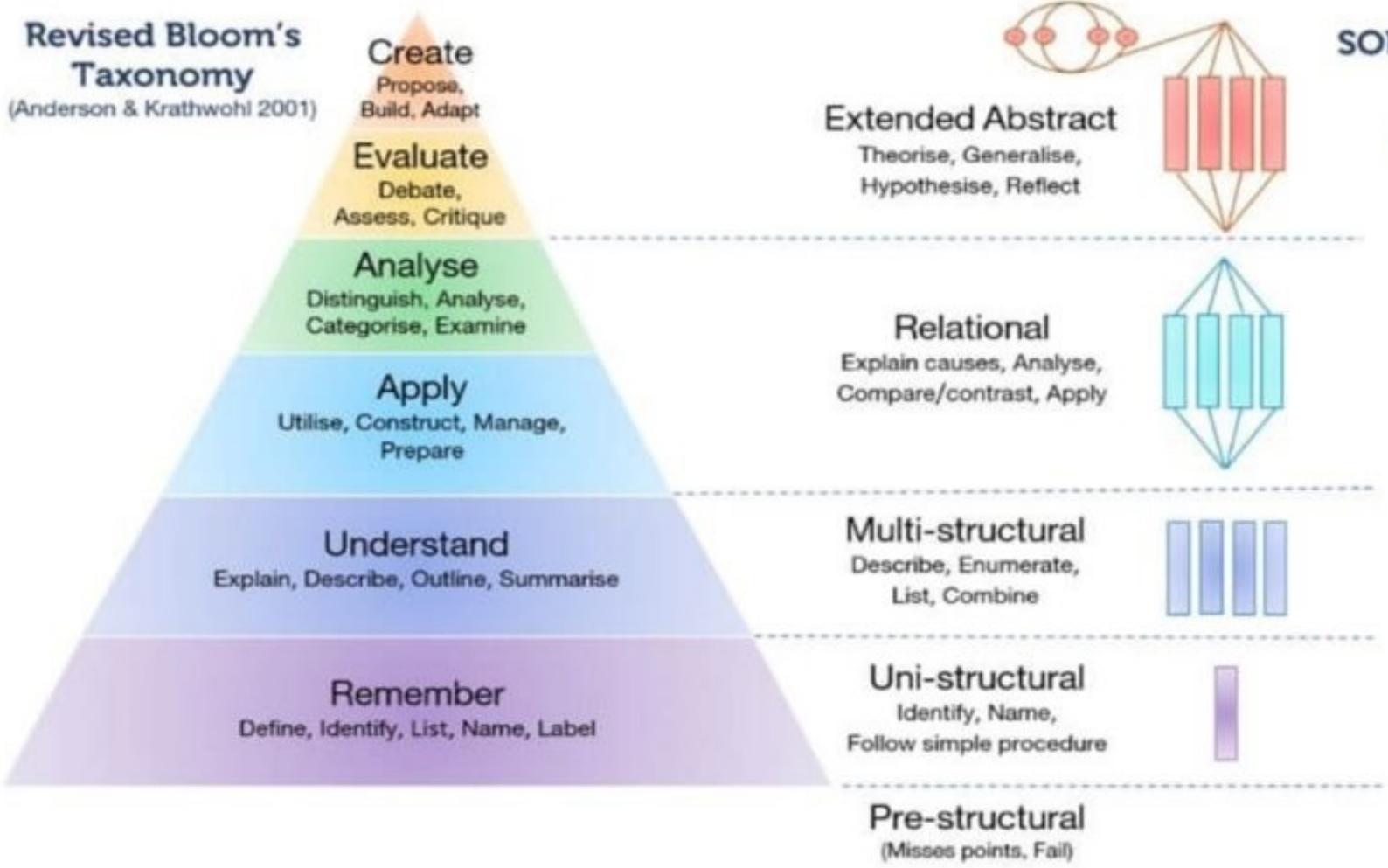

The Learning Pit
Woo-hoo!
Learning
I don't understand this ... Yet.
This is challenging!
I'm confused.
I can figure this out!
I'm getting it!
Maybe if...?
I can try...
effort
"This is what learning feels like."
"If you go over the pit, you're not really learning."


FAILING IS JUST ANOTHER WORD FOR GROWING.
AND YOU KEEP GOING.
{ THIS IS LEARNING }


MISTAKES ARE
PROOF
THAT YOU ARE
TRYING

Bloom's and SOLO Taxonomies

Revised Bloom's Taxonomy
(Anderson & Krathwohl 2001)



SOLO Taxonomy
(Biggs 1999)

Structure of the Observed Learning Outcome

Extended Abstract
Theorise, Generalise, Hypothesise, Reflect

Relational
Explain causes, Analyse, Compare/contrast, Apply

Multi-structural
Describe, Enumerate, List, Combine

Uni-structural
Identify, Name, Follow simple procedure

Pre-structural
(Misses points, Fail)

Growth Mindset vs. Fixed Mindset

- Embraces challenges as a place for growth
- Learns from failures
- Keeps trying even with setbacks
- Accepts criticism and critiques
- Believes they can learn anything
- Likes to try new things
- Believes attitude and effort determine abilities

- Avoids challenges
- Ignores feedback
- Questions why should they bother
- Gives up easily
- Threatened by the success others
- Limits themselves
- Places a lot of the weight on ”looking smart"

How can teachers help students to foster a growth mindset in the classroom?

https://prodigy-legacy-images.s3.us-east-2.amazonaws.com/legacy-images/10-good-strateg_172_f877609f156517a6638d70b4126516f2d0812f9b.png

Intrinsic / Extrinsic motivation

- Intrinsic motivation is motivation from within the person (e.g. love of learning, joy at sense of achievement)
- Extrinsic motivation is motivation from outside (e.g. reward or avoiding punishment).
- Research (e.g. Lloyd and Fox, 1992) has found that a person intrinsically motivated in an activity or task is more likely to persist and continue with that activity than when extrinsically motivated.

Intrinsic or "Internal" Motivation

- The doing of an activity for its inherent satisfcation rather than for some separable consequence.

- When intrinsically motivated, a person is moved to **act for the fun or challenge** entailed rather than because of external products, pressures, or rewards.

Extrinsic or "External" Motivation

- The doing of an activity for its external purposes.
- When motivation develops from a source other than the individual.
- When externally motivated, the person is driven by the external recognition, praise, or fame generated by their actions and hard work.

What makes an activity intrinsically motivating?

- One finds interesting points in the activity
- Establishes positive connections with other people
- One has enough knowledge background to complete the task
- The task is not too easy either too hard. It is an intermediate level task for the knowledge of the student.
- The purpose of the task goes beyond a ”score” to be attributed to the activity.
- The student can relate and see the value of the purpose of the task.

Exercise:

1) Which one of these sources of motivation is able to stick longer?

2) Do students push forward if one of these motivations is lacking?

3) How to balance the two types of motivation in the classroom?

Challenges when it comes to Motivation

- People are different
- It is not possible to motivate every student at the same time
- One strategy may work one time and not work another.
- They can me motivated in different levels

Intrinsic Motivation steps

Author and researcher Daniel Pink divides intrinsic motivation into three components:

M.A.P

mastery, autonomy, and purpose.

Creating lessons that have as a scope the development of Intrinsic Motivation.

What is Mastery?

Mastery X Perfection

Imagine learning how to ride a bicycle, we could say that a termomether for measuring your ability, for example being able to ride the bicycle without the aid of supportive wheels on the sides, is an indicator of mastery.

A student knows they have mastered riding a bike when they can balance and pedal on their own.

In this sense, mastery does not equal to perfection, being the best bicycle rider which is not going to commit any mistakes, but it indicates an acquired ability to be able to maneuver and perform the task, in this case, of riding the bicycle.

1. Developing Mastery (M)

- To increase mastery, set a clear learning objective with a mastery threshold.
- Learning objectives are the critical starting point for mastery learning thresholds.
- Learning objectives need to be specific, clear, and demonstrable: everyone must know exactly what the objectives are, and the learner must be able to demonstrate that they have learned them.

How can we measure Mastery?

- Creating a minimum mastery threshold
- Presentations
- Rubrics
- Constructive feedback

What do we mean by autonomy?

Autonomy is crucial for identity development.

In order to increase student motivation it is important to make them learn how to be in control of their own learning.

If they feel that it is their decisions and their responsibility to render knowledge productive and useful to them they will be extra motivated to learn or from their mistakes and for their own merit.

Autonomy is connected to Control.

2. Gaining Autonomy

- Control is important in motivating students to engage. Autonomy provides students the opportunity to lead their learning.
- Adding autonomy gives students the ability to fit what's being learned with their understanding of the world.
- Increasing autonomy involves looking at the amount of voice and choice provided in a lesson.
- Voice is giving students a say in their learning and acknowledging the backgrounds, perspectives, opinions, and beliefs of students.
- Just making sure that students have options in a given lesson increases engagement. Students can pose ideas and explore a topic independently to gain a deeper understanding of a concept.

How can we measure autonomy?

- Making rubrics and lesson planning that focus and pose questions based on how much they trust their own learning instincs and how comfortable they are with their own ability to learn.

- Instead of limiting students to one learning path, consider providing choices on how they learn the material.

...and about Purpose?

Purpose = Why

Purpose is what makes them driven to continue and to give their best.

Purpose provides students with a reason to engage and learn.

3. Building Purpose

- Students need to feel like they are working toward something worthwhile and are doing something important.
- One way to add purpose to a lesson is to ask students why a concept or skill would be important to learn.
- Allowing students to add their own spin on purpose shows them the “why” of their work.

How can we measure purpose?

- Making inquiries during the learning process to state the personal driven purposes of students and allowing them to have a voice.
- Emphasizing the different applicabilities of the learning objective.
- Relating the reason with a real world problem, PBL, or IBL.
- Making the learning objective related to the real world in a way that it can be more than only the score they will obtain from the exercise.

Formative vs. Summative Assessment Comparison

Assessment in the classroom allows educators to ask and answer vital questions:

- Are students actually learning what they were intended to learn?
- Are they making progress?
- How can teachers adapt their instructional tools and methods in order to improve the learning experience and academic outcomes for all students?

What are the purposes of these two different types of assessment?

- Formative assessment measures **how a student is learning** during a course of study.
- Summative assessment is designed to **measure how much a student has learned** after a unit or course has reached its completion.
- One way in which the two are commonly distinguished is that formative is considered assessment for learning while summative is considered assessment of learning. Formative assessment can happen as frequently as a teacher needs, and the information gleaned can impact one's teaching in real time.

Formative Assessment X Summative Assessment

Occurs frequently throughout instruction (e.g., during a unit of study)	Occurs after the instruction is complete (e.g., at the end of a unit of study)
Focuses on assessment *for* learning	Focuses on assessment *of* learning
Informs ongoing instruction to improve student learning outcomes in real time	Evaluates how well the instruction worked in the past
Usually covers discrete content (e.g., one skill or concept)	Covers larger instructional units of study such as a full semester or a year
Often uses qualitative (descriptive) data to evaluate a current state based on informal measurement	Often uses quantitative (numerical) data to apply formal measurement and evaluation techniques to determine outcomes

Examples of Formative Assessments

- Exit tickets
- KWL charts
- In-class discussions, coupled with teacher observation and note-taking
- Quizzes
- Games
- Polls during a lesson
- Class projects

KWL Chart – Formative Assessment

- A (K) (W) (L) chart is a tool that students can use to organize their research when starting on a project. It helps students to synthesize what they know (K), what they want to know (W), and what they have learned (L) about a topic. The chart is a valuable tool for students to focus their research and guide them in a direction to pick a topic and dive into the subject.

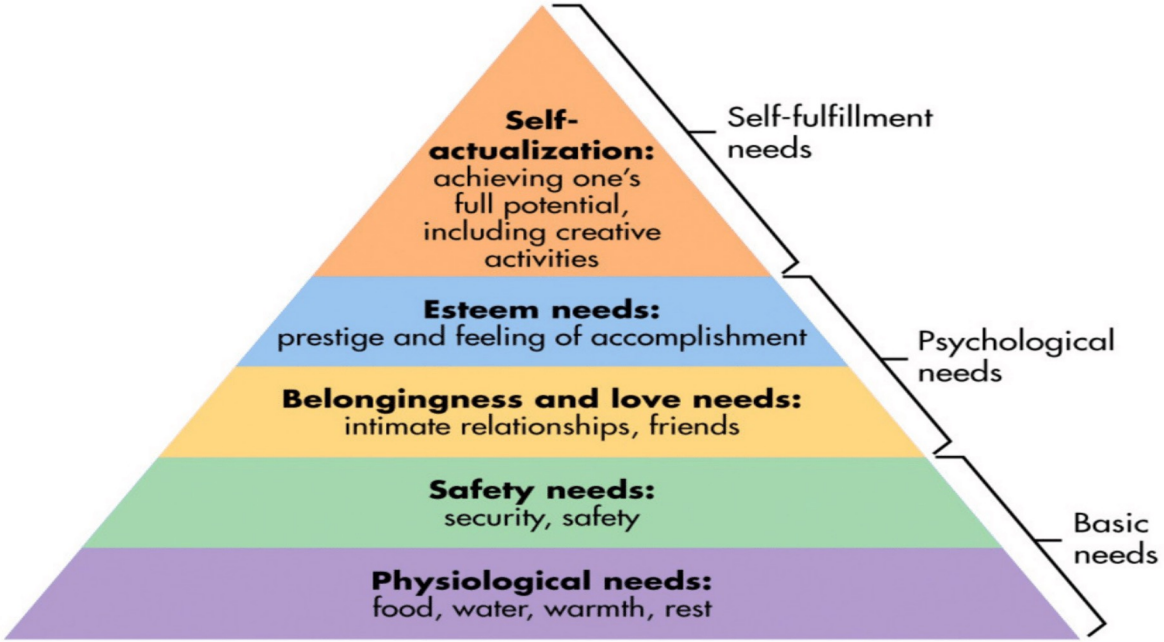
Examples of Summative Assessments

- Multiple-choice exams
- End-of-unit tests
- Final class essays that demonstrate cumulative knowledge
- Written evaluations

Maslow before *Bloom*

Preparing the soil to engage in learning

https://youtu.be/f3sJ7YStsV4

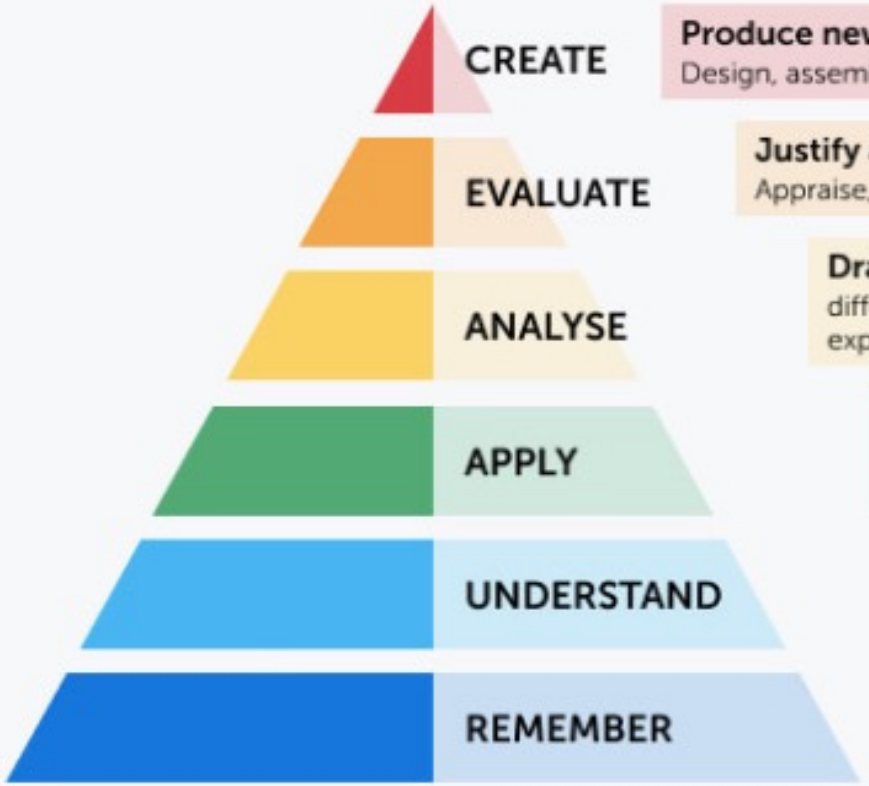


Hierarchy of needs theory, Maslow, 1970

Why is this important in terms of motivation?
Why might we need to go back to this basis?
How as teachers can we support this?

[See also Jayne's screencast in the Moodle Webinar library]

Bloom's Taxonomy



Produce new or original work
Design, assemble, construct, conjecture, develop, formulate, author, investigate

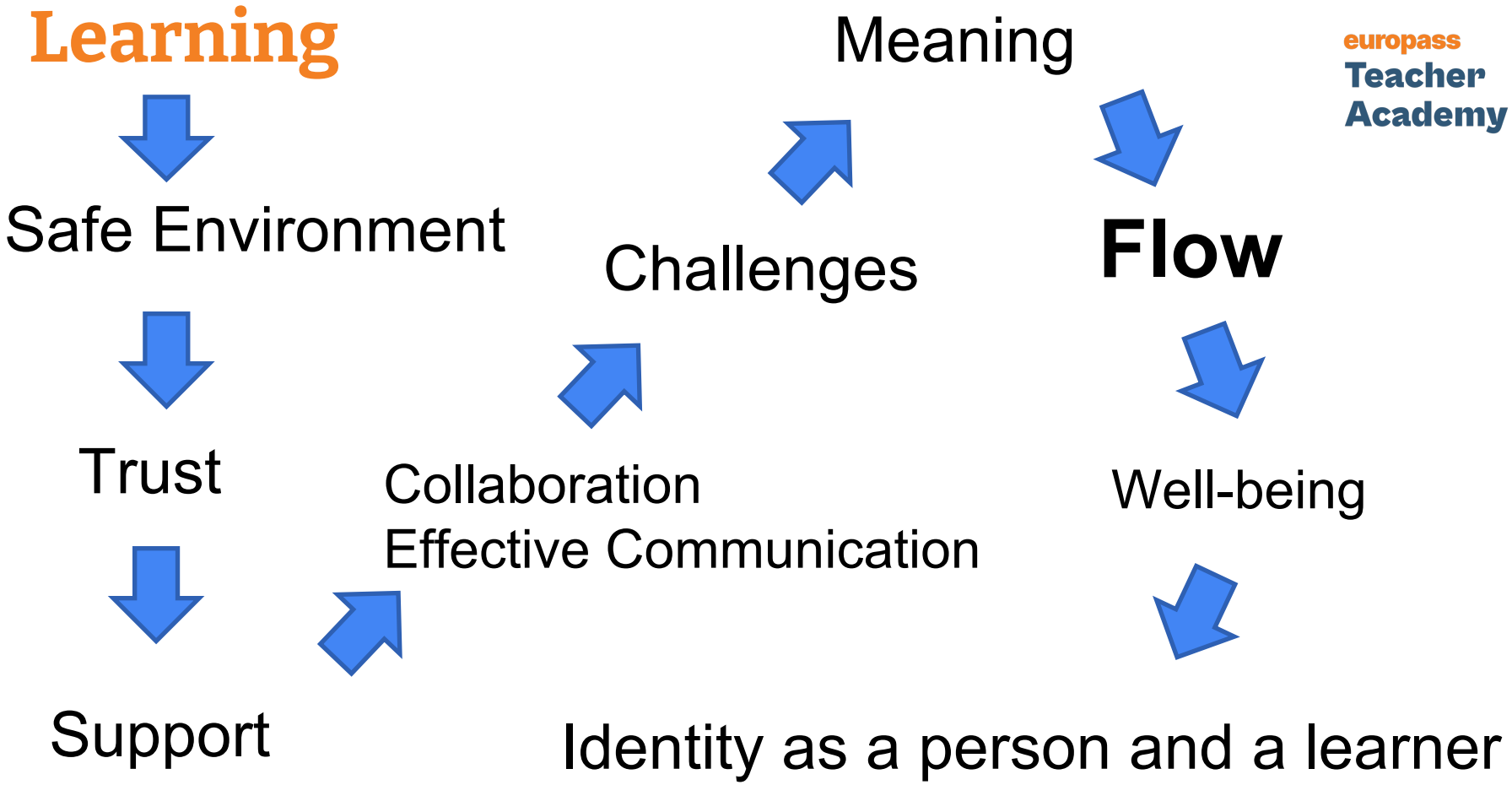
Justify a stand or decision
Appraise, argue, defend, judge, select, support, value, critique, weigh

Draw connections among ideas
differentiate, organise, relate, compare, contrast, distinguish, examine, expertiment, question, test

Use information in new situation
Execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch

Explain ideas or concepts
Classify, discribe, discuss, explain, identify, locate, recognize, report, select, translate

Recall facts and basic concepts
define duplicate, list, memorise, repeat, state



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Relationship with the Student

Trust
Interest
Care

Social and Emotional Learning

- Self-Awareness
- Self-Management
- Social Awareness
- Relationship Skills
- Responsible Decision-Making

https://www.youtube.com/watch?v=DqNn9qWoO1M

#Brain-Based Learning

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ARCS Model

- Is a method for improving the motivational appeal of instructional materials.
- The ARCS Model defines four major conditions (Attention, Relevance, Confidence, and Satisfaction) that have to be met for people to become and remain motivated

https://www.usa.edu/blog/time-management-techniques/



9 TYPES OF TIME MANAGEMENT TECHNIQUES & TOOLS

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Pareto Analysis

aka the 80/20 rule

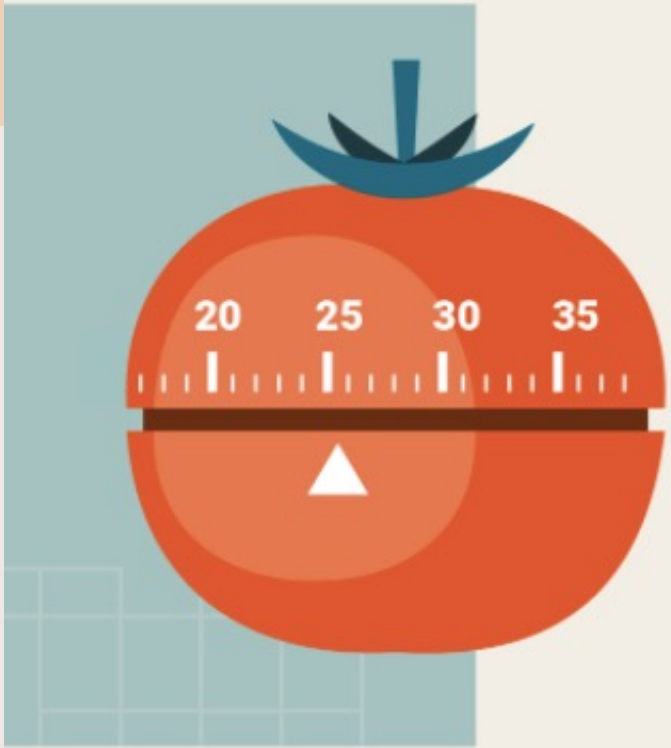
The 80/20 rule is the idea that **20% of actions are responsible for 80% of outcomes**. It helps you prioritize tasks that will solve problems.

WORKS WELL FOR:

- Problem solvers
- Analytical thinkers



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Pomodoro Technique

This technique has you **utilize a timer to break down your work into intervals**. Each interval is known as a *Pomodoro*.

WORKS WELL FOR:

- Creative thinkers
- Those feeling burnt out

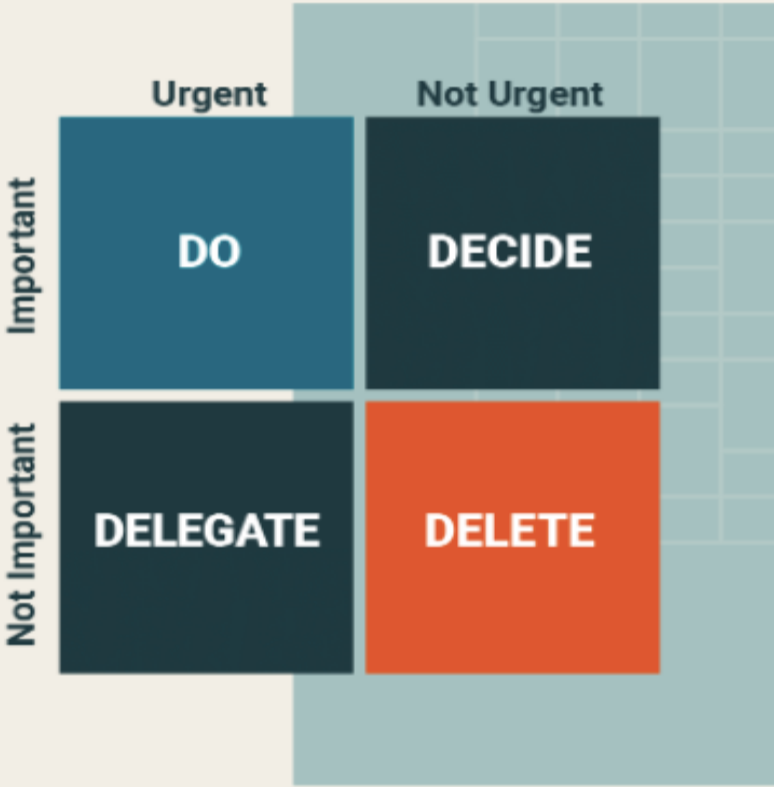
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Eisenhower Matrix

This method has you **organize your tasks into 4 quadrants** sorting them by important vs. unimportant & urgent vs. not urgent.

WORKS WELL FOR:

- People with tough decisions
- Critical thinkers



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Parkinson's Law

This law is based on the idea that **the amount of time you give yourself to complete a task**, is the amount of time it will take you to complete that task.

WORKS WELL FOR:

- Procrastinators
- People that work well under pressure

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Getting Things Done (GTD) Method

This process works to help you **move planned tasks aside by recording them on a piece of paper** & then breaking them down into actionable work items.

WORKS WELL FOR:

- Distractible people
- People who like to make lists

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Rapid Planning (RPM) Method

This technique was developed by Tony Robbins as a way to condition and **train your brain to focus on the outcome you're after**.

WORKS WELL FOR:

- Working students/parents
- People with long-term goals



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