

Blended Learning Brainy Learning

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conference

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Agenda



- Blended learning in the 21st century
 - Why blended learning?
 - From a political/institutional point of view.
 - From a teacher’s point of view.
 - From a student’s point of view.
 - Why blended learning?
 - From a learning point of view – the brain’s point of view.

Blended learning in the 21st century

- Blended learning understood as a technology enhanced mix of face-to-face teaching and online activities between classes has been put high on the agenda of the Horizon Report for the last couple of years.
- Short-term key trend alongside collaborative learning.



Short-Term Driving technology adoption in Higher Education for the next one to two years

Blended Learning Designs
Collaborative Learning

Why blended learning? (1)

- **From an overall, banal and ‘human’ perspective:**
- IT is an integral part of our everyday life and, thus, also a natural part of education.
- The use of IT is expected and needed in order for us to be in sync with the rest of the world.

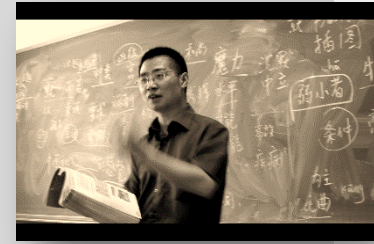


Why blended learning? (2)

- **From a political/institutional point of view:**
 - Democratization of education
 - Accommodating the rising student population world wide
 - Making not least further education more flexible (just-in-time learning)
- And behind these high goals:
 - Competition
 - Institutional survival

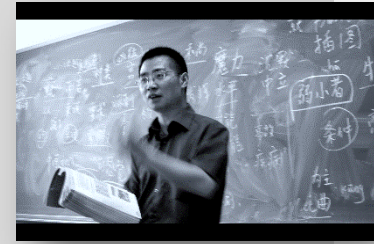


Why blended learning? (3)



- **From a teacher's point of view, a well organized blended learning format offers:**
 - More structured programmes/courses
 - More flexible ways of delivering information (screencasts, voice-over-presentations, videos, etc.)
 - More time for discussion and working in depth with the topics/materials in class – extended time with students

Why blended learning? (4)



- Better chances for
 - (informal and just-in-time) communication with the individual students (e-mailing in the LMS, chat, discussion boards, etc.)
 - catering to the learning process of the individual student (via evaluation features)
 - and, thus, supporting his/her opportunities for deeper learning
 - preparing the students for the IT based life after graduation.
- **But:** at the beginning a larger work load.

Why blended learning? (5)



- **From a student's point of view if s/he goes all in:**
 - Learning just-in-time
 - Improved time efficiency
 - Learning at the pace that suits the individual student
 - Easy ways of collaboration
 - More ownership for the learning process
 - Larger learning outcome
 - Deeper learning

Why blended learning? (6)

- Altogether:
 - We base our entire lives on the use of IT – IT has become an integrated part of how we work, communicate, meet – and learn. An integrated part of us, that is.

MUST HAVE

MUST HAVE

- Blended learning offers great opportunities for the institutions, for the teachers, and for the students – and, thus, for our societies.

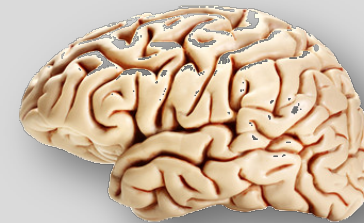
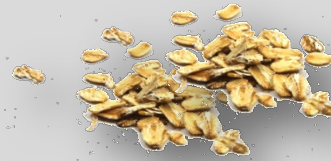
Why blended learning? (7)

- But first and foremost: In many respects, a well structured blended learning supports the way the brain learns.



Recipe

- 3 cups steel-cut oats
- 2 pints of water
- Bring water to boiling.
- Stir in oats.
- The mass simmers until oats are just tender and the liquid is nearly absorbed.
- Cool the mass down to 37-37.5 C, put it in a transparent plastic bag.
- Tie a firm knot on the bag.
- Grope the bag.



What is learning? (1)



- Learning is biology.
- When we learn our brain creates new neural networks/changes existing network.
 - Neural networks: Each of our 100 billion neurons can go into contact with up to 15.000 others that can go into contact with up to another 15.000 others, etc.
 - The total amount of possible connections is 10^{15} : a million billions.



What is learning? (2)



- When we learn we take in sensory input through our sense of sight, our sense of hearing and our sense of touch.
 - These are the 3 senses with which we communicate with the surrounding world and the senses that create memories.
 - The most important one is the sense of sight – almost 90 % of the input is visual.
 - As to smell and taste inputs, we can recognize them, but we can not recall smell and taste.

What is learning? (3)



- The various inputs get form and a general meaning at the back of the brain.
 - All individual elements of what we have seen, heard and touched, respectively, are gathered in one whole ‘experience’.
 - In the next step this ‘experience’ is interpreted on the basis of our existing knowledge and
 - emotions are attributed to the ‘experience’.

Comparison: pixeling



● Here all inputs are gathered to one whole 'experience'.

Little boy with comforter and bow tie, etc.
Soft hair.
Sounds from the comforter

Benjamin on the picture:

To me: my grandson whom I love.

To person X: nice little boy/To person Y: brat

▲ Here the 'experience' is given a personal meaning and emotions depending on who we are.



The message so far

- We always connect new information to something we know – for better or for worse.
- We always attach emotions to the information we take in.
- This means that everybody has his/her fully individual view of what s/he is taught.
- There are other important differences between individuals that make the learning process and outcome different from person to person.

What is learning? (4)

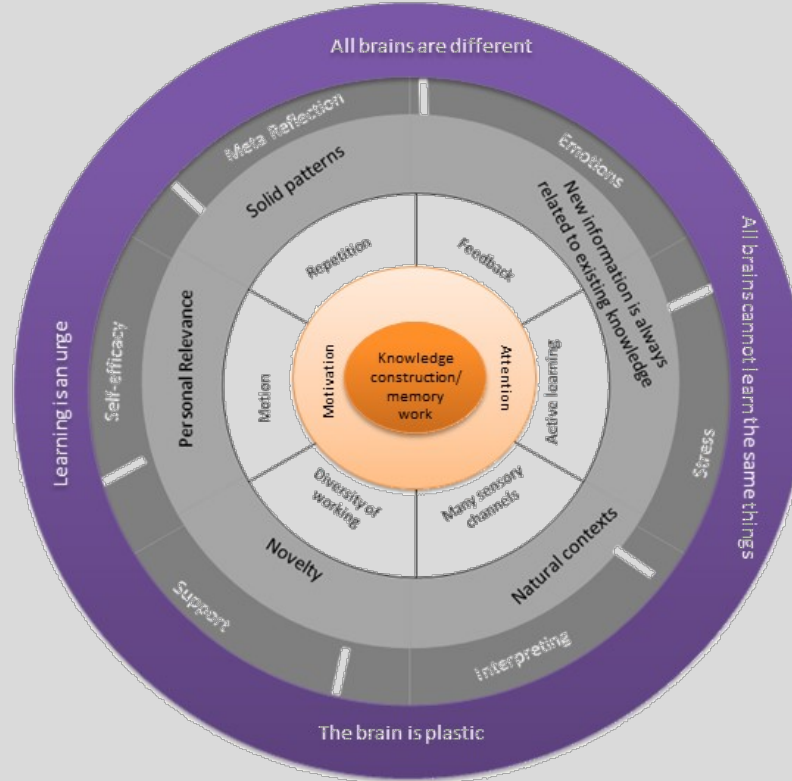


- From the back of the brain, the interpreted and emotionally charged ‘experience’ reaches the front part of the brain.
- Now we shall act on the ‘experience’:
 - We reflect, we evaluate, we plan, we consider the impact of our planning, etc.
 - Further emotions are activated.
 - We store what is needed in the long term memory.



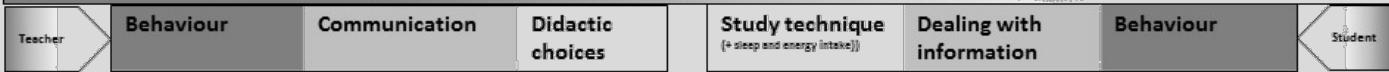
This process can be supported

The APL-model

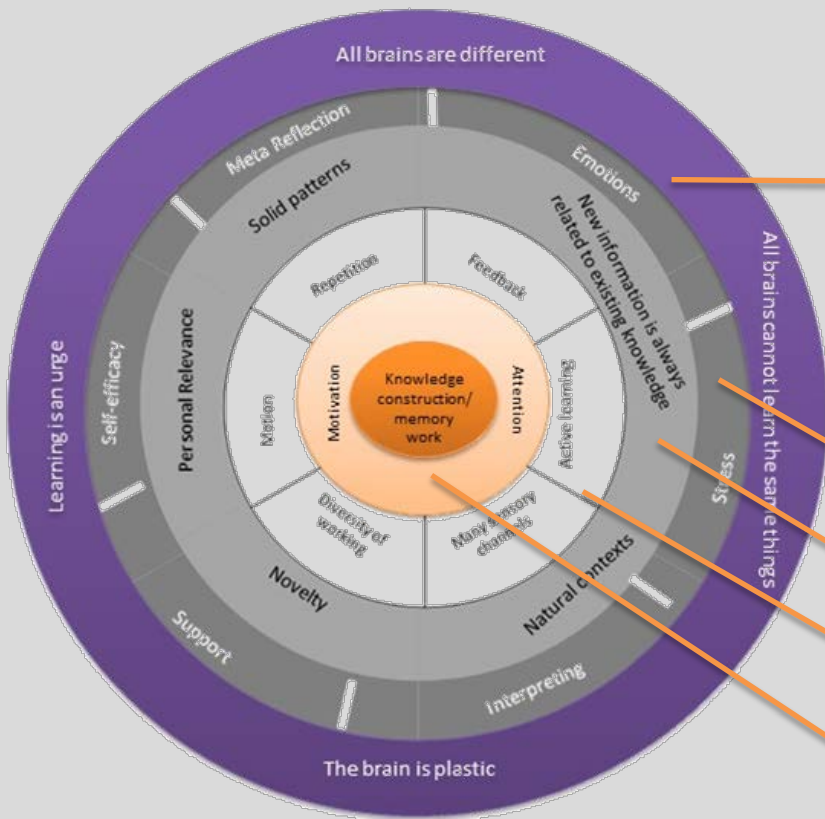


Factors of importance for our overall approach to teaching/learning

Factors that can deliver strategies for optimizing the learning process



Factors of basic importance for learning



Approach: factors important for our mindset of teaching.

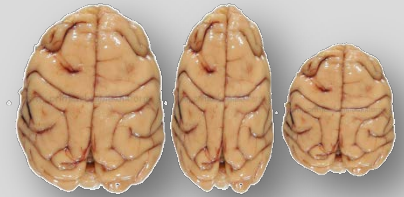
Practice: factors important for our teaching practice.
 (a) Behavior
 (b) Communication
 (c) Didactic choices

Learning: the goal of the process that factors from A and P individually/in interaction aims at and supports.

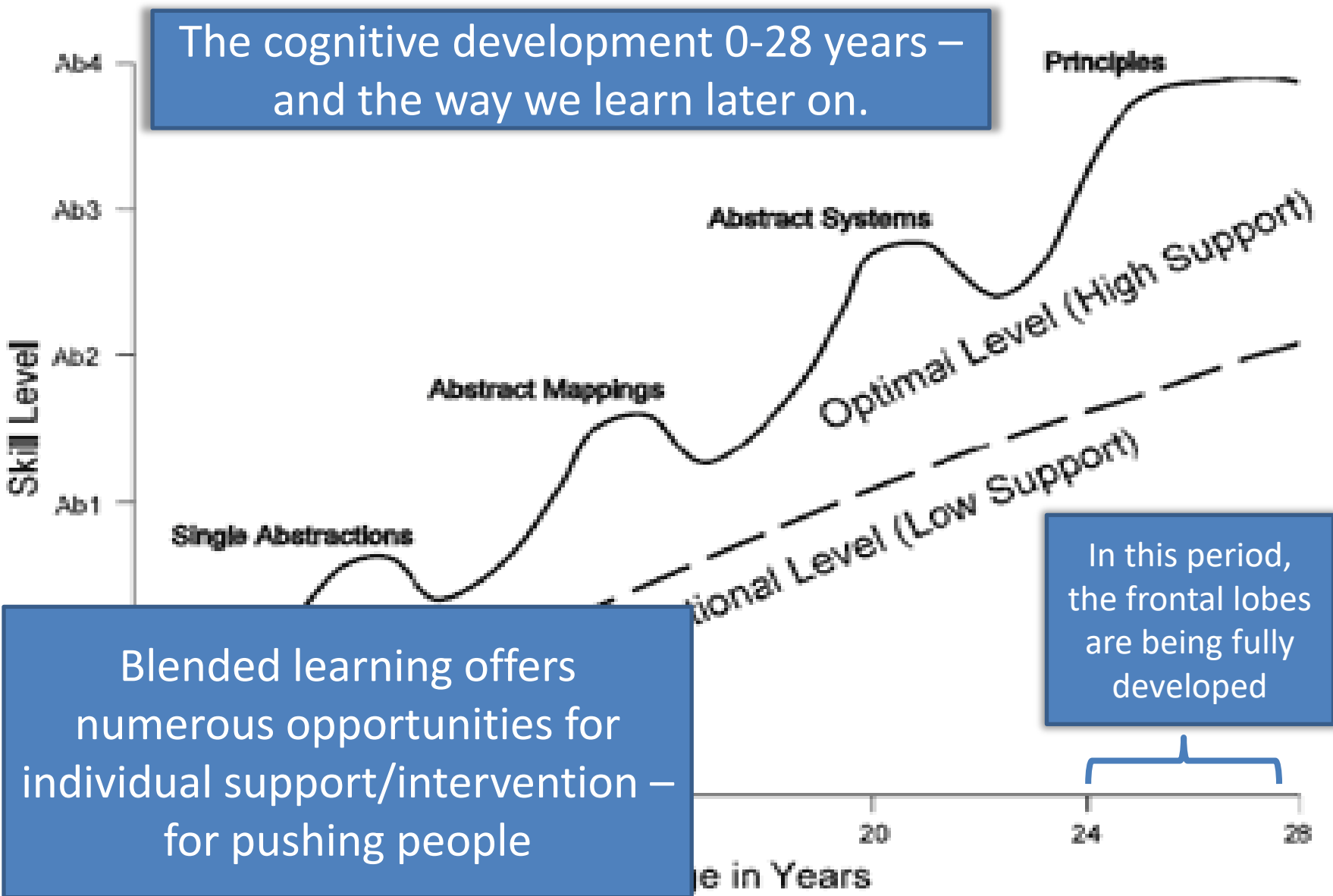
Many other factors can and must be considered:
The model only comprises what is research based.

The brain and blended learning

- Selected examples:
 - Support
 - Active learning
 - Feedback
 - Solid patterns
 - Many sensory channels and various media
 - Repetition
 - Attention/concentration



Support = teaching



Active learning (1)



- Our brains are developed to create action, originally movement.
- We are gregarious animals – we live in groups and we are designed to learn with one another and for one another.
- And we survived by moving around across steppes, building up experiences that we could draw on so that our actions were as qualified and informed as possible.
- Learning through action is in the genes of the human race.

Active learning (2)



- The whole format of blended learning is based on the students' involvement and participation.
- Of course, the students learn themselves and for themselves through the activities set up by the teacher.
- But being forced to cooperate in wikis, blogs, chatrooms, giving online presentations with discussion (webinars), etc. gives an extra dimension to the learning process – which is in sync with the way the brain learns.

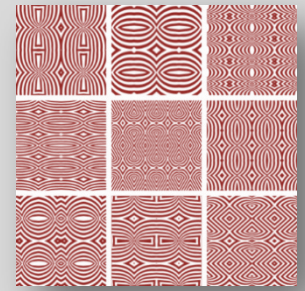
Feedback



- Feedback is central to the learning process.
- Feedback should be precise and constructive.
- Not least giving feedback supports understanding and retention.
- This means that peer feedback (students giving feedback to one another) is a most recommendable activity – easy to set up for instance in a wiki.
- Peer feedback is active learning *per se*.

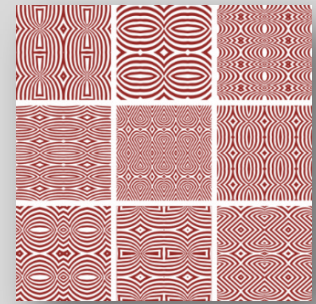
Google 'the feed back game' (Aarhus Universiy)

Solid patterns (1)



- The brain is always searching for solid patterns based on which it can predict results and consequences – again an evolutionary factor.
- The whole structure of blended learning as laid down in a learning management system (e.g. learning paths) helps the student navigate and gives them clear goals.

Solid patterns (2)



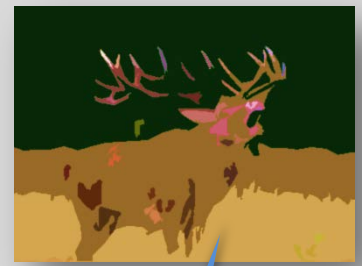
- Pictures, headlines, videos, etc. can support the need for solid patterns at a micro level – in connection with specific topics and items.
- Let the students give such input themselves – this adds an element of individual relevance to the activity which corresponds to the brain's way of learning, too.

Many sensory channels and various media



- The more sensory channels and various media we use when delivering information/teaching the better the knowledge is stored amongst the students.
- We create more and different neural networks all connected by the same content.
- This makes it much easier to recall the knowledge.
- Also, let the students experiment with various ways of handing in assignments etc.

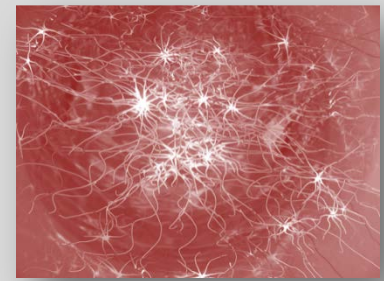
The picture



- As previously mentioned: The most important one is the sense of sight – almost 90 % of the input is visual.
- The picture delivers one and only one amount of information – even though pictures, form, depth, etc. basically are individual pieces of information.
- This is why we remember in pictures: You recall only one picture but a huge amount of individual bits of information
- Use metaphors, too.

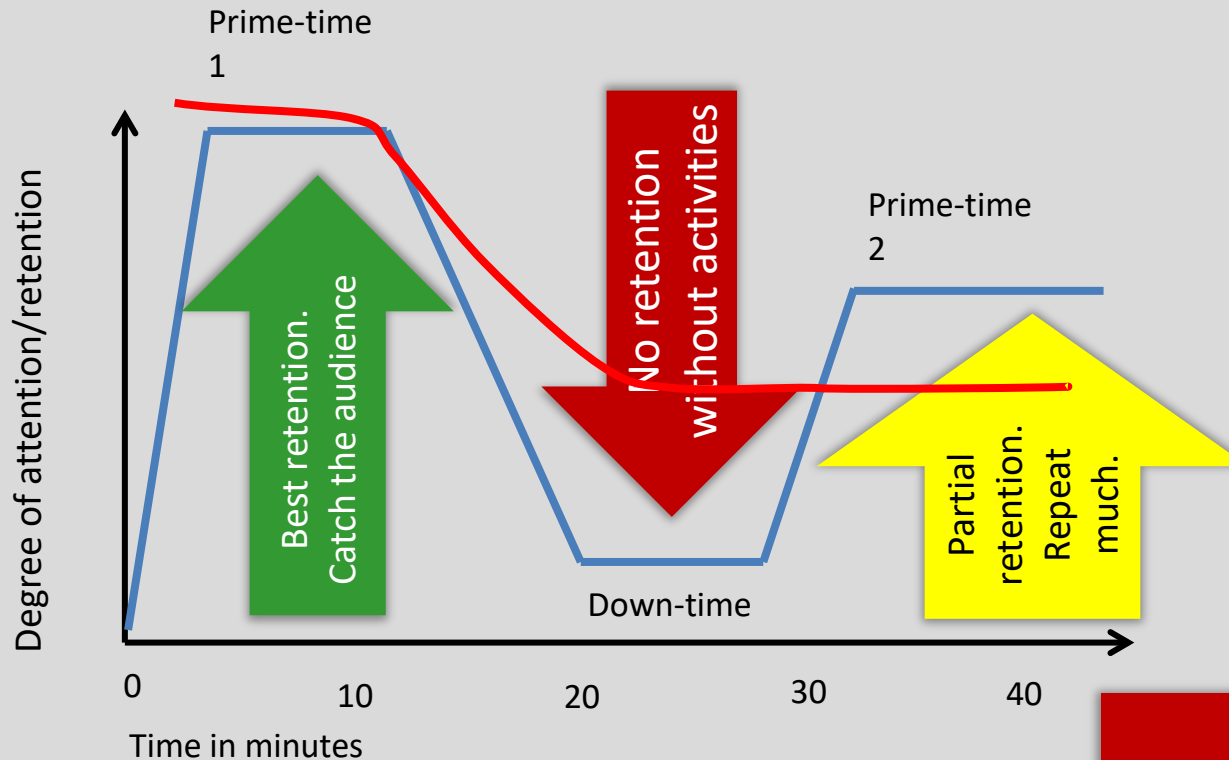
*A picture is worth
a 1000 words*

Repetition



- Basically, the brain learns in one and only one way: through repetition.
- The blended learning concept lets the student go back to previous lectures/activities as much as needed.
- In this process, the students can follow the pace that suits them best.
- Make short videos (7-8 minutes) or voice-over presentations for the students to go back to when needed.

The Attention-Retention Curve: Implications



Therefore, working with the materials after class is very important.

Red graph = the attention curve of the trainer.

Maintaining Attention



- Don't prolong 45 minute classes.
- Always have regular breaks (10-15 minutes).
- If possible, lecture for 20 minutes at a time with short breaks between the individual blocks – and a longer break after 3 turns.
- **40 minutes**: Prime times 75 %, down time 25 %
- **80 minutes**: Prime times 60 %, down time 40%
- **20 minutes**: Prime times 90 %, down time 10 %
- And the students should plan their work in accordance with this.



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