

IF ONLY I KNEW HOW TO DO IT...

How to study effectively at university?

Learning techniques: LEARNING FROM A TEXTBOOK

The course is supported by the project EFOP-3.4.3.-16-2016-00005 „Korszerű egyetem a modern városban: Értékközpontúság, nyitottság és befogadó szemlélet egy 21. századi felsőoktatási modellben”.

Learning from a textbook

Getting in the mood...

- what interests us, we can pay attention to it
- if we pay attention to something, we remember it more easily

Learning is an emotional relationship: it is difficult to learn what we do not like.

Let's consider learning from a written text as a **problem solving task**.

Let's process it in **multiple steps**.

- Shift from passive reader → to active problem solving

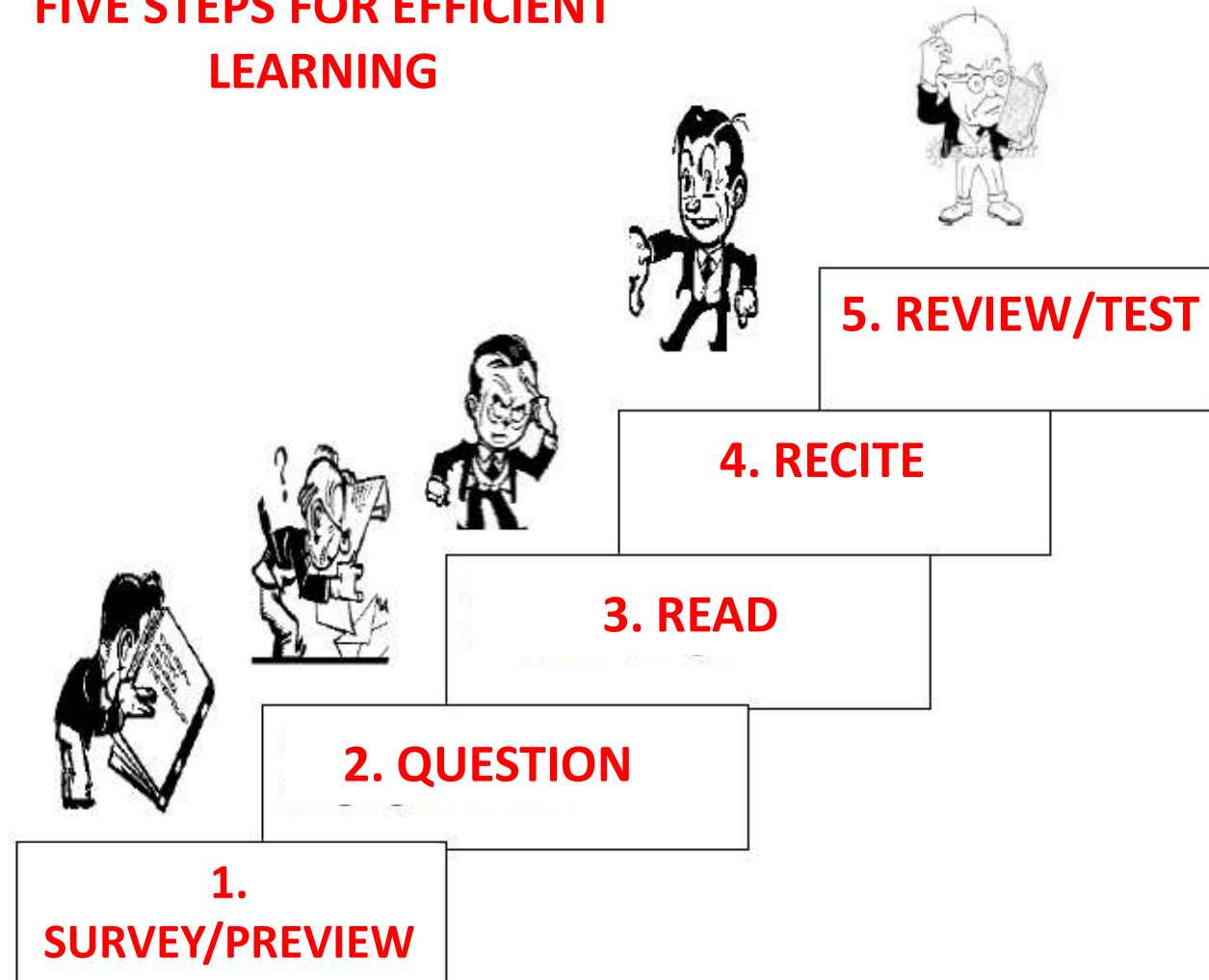
FIVE STEPS FOR EFFICIENT LEARNING

PQRST-method:

1. Preview
2. Question
3. Read
4. Self-Recitation
5. Test

SQ3R method:

1. Survey
2. Question
3. Read
4. Recite
5. Review



1. PREVIEW – skimming

- First impressions
- Thinking starts
- Preview of contents
- Comprehensive picture about the learning material
- Curiosity – no pressure yet
- Looking for keywords (central role, important, occur many times)

1. PREVIEW – skimming

Book preview:

- Title, author, publisher
- Year of publication, how many times it was published, original language, translated?
- PREFACE
- CONTENTS
- SUMMARY
- Bibliography
- Turning pages, skimming (20 pages in ca. 3-4 min)

2. Asking QUESTIONS

- During preview of a book:
 - Do we need this information?
 - Is it what we want to know?
 - Is the book currently important / necessary for us?
- Before reading chapters / sections:
 - Based on topics / subheadings / highlighted parts
 - Questions – we should be able to answer them after having read the chapter

3. Active READING

Understand, reduce, fix

- *Deep processing*
- The book (chapter) is processed with full attention, active interest – in smaller units
- *Understand* everything and *remember* the main points
- Important to read everything
- Study also graphs, tables, figures
- Illustrations – may help in recalling contents

3. Active READING

Understand, reduce, fix

- Reading the whole text – with varying SPEED!
- Important part, new information – slow down
- Not so important – skimming
- Speed of reading should be changed dynamically.
- Active reading involves ***understanding, reducing the text to the main points, and fixing*** what we have understood.
- The reader should be involved in the reading material.

3. Active READING

Understand

- Frequent mistake: learning without grasping the meaning, understanding
- Short term: may be successful
- Long term: harmful – thinking is not encouraged
- University studies: large volume of study material, relationships should be seen – learning without understanding is not efficient
- Active / Meaningful reading: thinking process – deep, analyzing:
 - *New knowledge will be integrated in the already known.*
 - *New information from the text is connected with information stored in our long-term memory.*
 - *We draw conclusions to enhance understanding.*

3. Active READING

Understand

Factors that influence understanding:

- Previous knowledge about content, structure and author
- Size, characteristics, illustrations of the text
- Size of vocabulary
- Preference of the type/style of the text
- Interest in the topic

3. Active READING

Understand

- Understanding can be enhanced by processing the text with *asking questions*:
 - We will remember the contents better if we ask questions – compared to simply reading it
 - Asking questions is an active process – need for thinking, concentrating, maintaining interest
- Practice how to ask questions:
 - Transform titles, subheadings, main point of a paragraph into questions
 - Clarify the meaning of words

Research (Metzig és Schuster, 2003) outcomes:

Answering concrete questions, related to facts, after reading each paragraph of a longer text:

Exam achievements of students were significantly improved.

3. Active READING

Reduce

- When reading with the aim of learning: the text should be reduced
- Finding the main points, distinguishing it from the less important parts
- Facts (e.g. data, definitions) cannot be reduced.
 - Difficult to learn – no meaning in themselves
 - To fix in long-term memory: *elaborative technique*: we complete facts with additional information → become meaningful, related to something else

3. Active READING

Reduce

Techniques for reducing information:

- ***Underline, highlight*** the most important thoughts, scientific terms
 - After we have understood the general structure of the learning material
 - Useful – focuses our attention to the given section, stimulates thinking
 - Helpful when re-reading, revising the material – easy to locate the most important points
 - Do not underline whole sentences! (in average: 6-10 words / paragraph)

3. Active READING

Reduce

Techniques for reducing information:

- *Individual code system, individual system of abbreviations*
- *Apply different symbols, colors etc. (important, difficult, don't understand)*
- Making *notes* on the margin of the text – most important *keywords*, thoughts.
- Crossing out less important parts.
- *Taking notes, preparing a draft* – based on the most important things.

3. Active READING

Fix, memorize

- Understanding – remembering: closely related.
- Reducing techniques: aid also fixing, memorizing – highlighting, searching for keywords, taking notes, preparing an outline – aid fixing.
- Reading – together with active involvement – we remember our own activity the best.
- New knowledge → **short-term memory** – capacity is finite, can store 7 (± 2) units.
- When short-term memory is full, new pieces of knowledge will displace old ones.

3. Active READING

Fix, memorize

- During reading/listening to a lecture – we easily understand what we have read/heard – in short-term memory – easy to remember. „I have learned it.”
- But! After a few hours we forget it → test, exam: we do not remember what seemed to be so easy, so evident.
- *Understanding should not be mixed with knowing it!*
- *The material that was understood should be fixed!*
- Storing information for longer period: short-term memory → **long-term memory** – *repetition, learning multiple times, putting new information into context, relating to old information.*

3. Active READING

Fix, memorize

- Brain (hippocampus):
time is needed to fix and organize new information.
- *Storage* – new and already existing information in different parts of the brain should be connected – certain time interval is needed.
- After sleeping, we remember better what we have learnt the previous night.

3. Active READING

Fix, memorize

Developing data transfer from short-term to long-term memory:

- How can we study? – preference, efficiency
- Do we study the whole learning material or only some units?
- Answer depends on:
 - nature and length of study material,
 - Our skills, habits and individual traits.
- Reading multiple times enhances more precise recalling of the material
- We can remember the outline of what we have read for the longest time
- Faster, trained readers can recall more

3. Active READING

Fix, memorize

Developing data transfer from short-term to long-term memory:

- Long-term storage is easier if the study material has some **self-reference**
- *Emotional involvement*, personal experience is very important in learning.
- How to introduce something personal:
 - Disagree with certain points in the text – argue with the author;
 - Find relationship between contents and our personal preferences;
 - Ask questions from your fellow students.

4. Self-check / RECITE

- After each section:
 - Think over and try to recall what you have read,
 - Ask questions,
 - Try to answer these questions
 - If you cannot answer them → return to the text, read it again
- Oldest method for self-check: recite
 - Stop every once in a while during reading – (not looking into the book) recite the main points using your own words (not necessarily aloud)
 - Frequent mistake: reading the textbook without paying attention, concentration – illusion of studying
 - Reciting enhances fixing new knowledge in memory and points out shortcomings

4. Self-check / RECITE

Practical tips:

- Revise smaller units at a time – easier to find the main thoughts
- Revise after a longer period has passed – do not revise the same material within a short time
- New material should be revised multiple times at first (in the first period we forget faster than later)
- Write down the 5 most important things from each chapter
- Prepare a schematic drawing
- Revise before going to sleep

4. Self-check / RECITE

- First revising and recital: self-check + hinders the process of forgetting
- Connect what you have read to your own experience
- Try to find examples – check if you have understood what you have read + apply new knowledge.

Textbooks:

- *Questions at the end of each chapter* – aid learning, self-check.
- *Tasks* – solving them aids understanding or practical application.
- If you cannot solve the task, cannot answer the questions → read it again, think it over.
- If you do not succeed, discuss it with your fellow student.
- If it does not help, discuss it with your teacher.
- Do not move ahead until you have solved this problem!

5. REVIEW

- When and how often?
 - Individual
 - Know your own learning strategies, style – you will be able to decide how many revisions you need → make a plan for revising.
 - If you have studied according to your plan (good time management) – you can revise the whole material on the day preceding the exam – intensive and effective method to revise.
 - If you have processed the material actively and thoroughly, have checked yourself regularly, highlighted keywords and located the main thoughts, have taken notes etc. – it will be easier to retrieve the material from your memory.
 - Preceding this final review: „I do not remember anything”.
 - Suggested technique: place yourself in the exam situation:
What should I answer if I received this question?

5. REVIEW

- Appropriate method for revising:
 - *Re-reading* a larger unit (exam topic, chapter) – faster if we have deeply processed it previously
 - *Recite by heart* – orally, aloud; or write down the main points of the outline
 - *Check* if the recital was correct – *skimming* the recited material.
 - If we were uncertain in something, read that part again, paying more attention.