

WORKBOOK

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# **Day 1: Awareness**

## **Brainstorm**: Often used learning strategies

#### Which learning strategies do you use?

Write down the strategies that you use while studying below. Think about what you do when you are reading something for the first time, but also how you repeat the materials, study them, and how you prepare for your exams.

|  |
| --- |
| Strategy:  Explanation: |
| Strategy:  Explanation: |
| Strategy:  Explanation: |
| Strategy:  Explanation: |
| Strategy:  Explanation: |
| Strategy:  Explanation: |
| Strategy:  Explanation: |
| Strategy:  Explanation: |

Which of these strategies are your favorites? Give them a star rating.

## **Sorting cards**: Learning strategies

#### Which strategies are effective for long-term learning?

Which strategies belong in which category? Place an ‘X’ where you think these strategies belong!

|  |  |  |  |
| --- | --- | --- | --- |
|  | Very effective | Medium effective | Not effective |
| Summarizing |  |  |  |
| Self-explanations |  |  |  |
| Distributed practice |  |  |  |
| Rereading |  |  |  |
| Highlighting |  |  |  |
| Practice testing |  |  |  |
| Visualization |  |  |  |
| Interleaved practice |  |  |  |

After you have filled this out entirely, your teacher will explain to you which of these strategies are effective, and why. Place another sign in the table (a # for example) where the scientific evidence would place these strategies. Which ones did you get wrong?

If you want to, you can use the table below to fill in why some strategies were (un)expectedly (in)effective:

|  |  |
| --- | --- |
|  | Explanation |
| Summarizing |  |
| Self-explanations |  |
| Distributed practice |  |
| Rereading |  |
| Highlighting |  |
| Practice testing |  |
| Visualization |  |
| Interleaved practice |  |

## **Brainstorm**: Is your favorite learning strategy effective?

#### How could you make your strategies more effective?

On page 3 you’ve indicated your favorite strategies. Did these turn out to be effective, or not at all? In this assignment, we will attempt to make the strategies you are already using a little more effective. Think about how to make the strategy *active*, and to make sure you receive *feedback* about what you already know and what you do not yet know. Write down two ideas to make your strategies more effective:

|  |  |
| --- | --- |
| My strategy |  |
| How effective is this strategy in itself? |  |
| How do I make the strategy more active? |  |
| How can I make sure to get feedback from the strategy? |  |
|  |  |

|  |  |
| --- | --- |
| My strategy |  |
| How effective is this strategy in itself? |  |
| How do I make the strategy more active? |  |
| How can I make sure to get feedback from the strategy? |  |
|  |  |

## **Brainstorm**: ‘Desirable difficulties’

#### Do you recognize the paradox? What do *you* find hardest about learning/studying?

The teacher should have explained the ‘experienced-versus-actual-learning paradox’ by now. In short, it means that when we are assessing ourselves on how well we know something, this is often not in line with what we actually know. For example: if you read a text very often before your exam, the text becomes more and more ‘recognizable’ (you read it and think: ‘oh right’, ‘I know this’, etc.). This makes you feel like you know the materials – but on the exam you cannot answer the questions because you cannot seem to remember the materials. The opposite also happens: you are applying practice testing, but you don’t know the exact answer to everything. You are confronted with everything you do not yet know, and you feel like you don’t know anything. However, on the test it turns out you do actually know the materials pretty well! This paradox is explained by ‘desirable difficulties’: those things for which you invest effort, stick better in your head, even if you do not notice yourself.

Do you recognize this paradox in your own learning?

* Yes
* No

What are your experiences with rereading?

What are your experiences with practice testing?

Are there any other strategies with which you have noticed such a paradox? How did that work?

What do *you* find hardest about learning/studying?

## **Reflective writing**: Putting in effort in other aspects of life

Reflecting on a different (not study-related) memory in which you have put in effort to learn something or change something

Think of a memory in which you learned something new by putting in a lot of practice (> 30 hours), something, which cost you a lot of effort (in sports, arts, music, computer etc.) **OR** Changed your behavior (for example: doing sports more often).

|  |
| --- |
| What have you learned? |
|  |
| How did you approach this? |
|  |
| How long did it take you to learn? |
|  |
| What did you do when it got tough? |
|  |
| Have you ever thought about quitting? |
|  |
| How did you convince yourself to pull through anyway? |
|  |
| What could someone have said to help you through this process? |
|  |
| What would you advise someone else who is going into the same learning process now? |
|  |

Take a look at the intentions you wrote down to make your learning more active: how does your advice from the reflective writing exercise relate to the application of these new learning strategies? Think about the advice you gave yourself on the previous page. What would this mean for the application of the active strategies on page 5?

|  |  |
| --- | --- |
| My intentions on page 5 |  |
| My most prominent advice |  |
| How I will use this advice to make my strategies more active |  |

Listen to the advice your peers wrote down and discuss in the group. Use the space below to write down the useful advices they have given themselves or others:

|  |
| --- |
|  |
|  |
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|  |

How will you apply active learning in your studying?

|  |
| --- |
|  |
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|  |
|  |



# **Day 2: Practice**

## **Practice**: Effective learning strategies

### Self-explanations

#### Asking questions before and while reading a text for the first time

We want to **understand** why things are the way they are. If we understand, we can remember it better. The materials are not only anchored more strongly in our memory, but also linked to our prior knowledge. That is why, while reading a text, you will start asking yourself questions **while** and **after** **reading** a text:

* **Why**? and **How**?
* Why is it needed to…? Why is this true? Why is this important to my field of study?
* How does this work…? How does it relate to what I already know?

#### Example

|  |  |
| --- | --- |
| **Paragraphs in the text** | **Questions you might ask** |
| Why don’t students use more effective study techniques?  It seems they are not being taught the best strategies, perhaps because teachers themselves are not schooled in them.  A second problem may be that in the educational system, the emphasis is on teaching students critical-thinking skills and content. Less time is spent on teaching them how to learn.  The result can be that students who do well in their early years, when learning is closely supervised, may struggle once they are expected to regulate their own learning in high school or college. | Which strategies?  Why don’t students learn how to learn?  What is the result of this? |
| Some questions, such as the best age for students to start using a technique and how often they will need to be retrained or reminded, still require further research.  But even now teachers can incorporate the most successful approaches into lesson plans so that students could adopt them on their own.  For instance, when moving to a new section, a teacher can start by asking students to do a practice test that covers important ideas from the previous section and providing immediate feedback.  Students can interleave new problems with related ones from preceding units. Teachers can harness distributed practice by reintroducing major concepts during the course of several classes.  They can engage students in explanatory questioning by prompting them to consider how the information is new to them or why it might be true. | What could teachers do?  How can teachers support their students? |

Adapted from: Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). What works, what doesn’t. *Scientific American Mind*, *24*(4), 46-53.

Now read your own text! Remember to ask yourself several questions throughout each paragraph. Stop and consciously go over what you’ve just read. In the beginning, it might be a challenge to come up with questions, but the more you do it, the easier it gets and the more questions pop into your head while reading!

### Actively summarizing texts

Summarization can be a very effective as well as an extremely ineffective learning strategy. In this assignment, we will attempt to make an **effective summary**! There are a few active summarization techniques, one of which is the read-recite-review method, but using a Cornell scheme also works very well. You can also combine these, which is what we will do in this assignment. Therefore, this method has several distinct steps.

First, actively creating the summary. We’ll use the read-recite-review method:

1. Read the text (use the text you brought which you’ve already read)
2. Write a summary from memory (recite): what do you still remember?
3. Review your summary: did you explain everything, was there something you missed?

By writing a summary in this manner, you’ve been actively engaging with the materials, which makes them stick better in your head. the summary you are going to write, you can write in the scheme below (in the column called ‘summary’).

#### Example

For the excerpt of the article summarized here, see page 10.

|  |  |
| --- | --- |
| Title (of the article): **What works, what doesn’t** (Dunlosky et al., 2013) | |
| *Keywords/questions* | *Summary* |
| Ineffective strategies  (student & teacher) | Students often use ineffective learning strategies, which gets them in a lot of trouble. Teachers often also do not know how student scan learn effectively and focus mainly on their own courses/content. Because of this, the teachers do not know how to support their students. |
| Supporting effective learning strategies (teachers) | There are many ways in which teachers can support their students: starting their sessions with practice tests which include feedback for students, supporting distributes and interleaved practice by coming back to subjects in later sessions, and having students explain new information to themselves by guiding their questions. |

##### You’re up!

|  |  |
| --- | --- |
| Title (of the article): | |
| *Keywords/questions* | *Summary* |
|  |  |
| *Keywords/questions* | *Summary (continued)* |
|  |  |

Step 2: complement with keywords and/or questions to complete the Cornell scheme. In the scheme you have now made a summary on the right side, but the left column has been left blank. In that blank space, you can add those keywords and / or (short) questions. Thanks to this Cornell scheme you can easily test yourself: cover the right column; can you explain the keywords and answer the questions on the left side?

If you would like to continue using the Cornell method, please download the form from our website: [www.studysmartpbl.com](http://www.studysmartpbl.com)

### Making a practice test

The essence of practice tests is: questioning yourself. This is a form of "*retrieval practice*": retrieving information from your memory. In this sense, it is actually a training of remembering. By answering practice questions, you are checking whether you can actively retrieve the studied materials from memory when asked. You hereby commit yourself to thinking more deeply. Possible ways of practicing retrieving information from your memory are:

* Complete practice tests (which you can write yourself, or get from teachers)
* Ask yourself questions about what you have studied, explain the answers to yourself and check whether the answers you gave yourself were indeed correct
* Someone else asks you a question and you explain the subject matter
* Create a practice test on flashcards about the text you need to learn (on paper or online: [www.quizlet.com](http://www.quizlet.com))

There is some overlap between the aforementioned strategies (self-explanations and summarizing using the Cornell method) and this method. This is because practicing answering questions can be easily integrated into other strategies to make them more effective (after all, you are more active with the material, and you practice retrieving the information).

By using the Cornell method to write your summaries, you are already writing practice test / flashcard questions, as it were: the keywords and questions in the margin or on one side of the card, the explanation or the answer next to it or on the other side. Furthermore, by using self-explanations while reading, you are already asking yourself practice questions about what you have read. It is also very useful to let others ask you questions, for example you can also create and exchange practice tests, so that you can practice more.

For this exercise you will practice making flashcards. You just can't cut them out easily or write on the different sides, so we'll use a table for that. However, we can practice the way of asking!

#### Example

|  |  |
| --- | --- |
| **Front (question/keyword)** | **Back (answer/explanation)** |
| Effective learning strategies | Make practice tests ("retrieval practice")  &  Distributed practice (returning to the topics you need to learn more often) |
| Which principles make learning strategies effective? | *Active* learning (actually actively working with the subject matter, for example asking questions about it) and immediate *feedback* (knowing whether you are doing well and why) |
| What are "desirable difficulties"? | Difficulties in learning: ways of learning that make learning "more difficult", but also more active, and thereby ensure that the subject matter lingers better in your head |

##### **See the next page for the blanks exercise!**

**You’re up**! Use the article you brought which you’ve already read and fill in flashcards:

|  |  |
| --- | --- |
| **Front (question/keyword)** | **Back (answer/explanation)** |
|  |  |
|  |  |
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|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| **Front (question/keyword)** | **Back (answer/explanation)** |
|  |  |
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### Visualization using the dual-coding method

Everyone knows about visualization: expressing text in pictures. By using both words and images/graphs/diagrams etc. information sticks better in your memory. In order to convert a text into pictures, you have to understand it, think about it, come up with a good kind of picture (see below). Only then you can actually express the text in a picture. In this way, the subject matter is understood at a much deeper level.

When you let text and images come together, two different ‘roads’ to the same information are laid in memory. This means that you can also access this information more easily on a test: there are multiple ways to ‘cue’ that information. So it's not about making a picture and learning just that, but about learning both! This is also why you can work the other way as well: suppose a teacher used a picture in his / her lecture, then use that picture to see if you can explain the concept in words! You can also test yourself with a picture you have made or received from a teacher: can you explain the whole concept based on a picture?

Here are some examples of picture types you could make:

A close up of text on a white background

Description automatically generated

It is important with this strategy to remember that not all material is suitable for expression in this way. Therefore, be critical of the articles / subject matter you brought along, whether this strategy is possible.

##### **You can practice visualization on the next page**

|  |  |
| --- | --- |
| **Image (own or from teacher)** | **Explanation (in words)** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

## **Practice**: effective *planning-*strategies

### Practicing distributed practice

Planning distributed practice means: planning intervals between different study sessions on the same subject. In other words, if you have already learned about photosynthesis on Monday, you will not reread is that same afternoon, but, for example, on Monday the next week. In this way, the subject matter is embedded much more strongly in your memory. You will notice that you forget some of the material between sessions, but that is entirely normal. This just goes to show that it is good to learn it again: if you ‘relearn’ something, you will forget it more slowly (remember the graph)! By repeating, the subject matter is therefore much more firmly anchored in memory.

A schedule with room for repetition looks like this:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** | **Monday** | | **Tuesday** | | **Wednesday** | |
| 8 – 9 | Breakfast |  | Breakfast |  | Breakfast |  |
| 9 – 10 |  |  |  |  |  |  |
| 10 – 11 | Prepare Task 5 | 20% | Prepare Task 5 | 80% | Repeat Task 1 | 2nd x |
| 11 – 12 | Prepare Task 5 | 50% | Prepare Task 5 | 100% |  |  |
| 12 – 13 | Lunch |  | Lunch |  | Lunch |  |
| 13 – 14 | Repeat Task 1 | 1st x | Tutorial |  | Prepare Task 6 | 30% |
| 14 – 15 |  |  | Tutorial |  | Prepare Task 6 | 50% |
| 15 – 16 |  |  | Repeat Task 2 | 1st x |  |  |
| 16 – 17 | Sports |  |  |  | Sports |  |

The longer the periods between repetitions, the longer you will eventually remember the material. The example above has also been repeated in a very short time. You will plan the next two weeks for this assignment, in order to leave more room for repetition!

Also schedule standard things, such as exercising on a Monday evening, working on a Tuesday afternoon, or getting up later because of a fraternity evening the previous day. This way you can make your planning as realistic as possible. During the scheduled period, keep track of how much you have actually been able to do. Many people are "time optimists": they think they can do more in a certain amount of time than is actually feasible. By keeping track of how much you do in which time for a while, you can make your schedules increasingly realistic.

Also keep in mind to leave room for relaxation and any unforeseen events!

##### **After the explanation of interleaved practice (page 19) you can fill in a schedule**

##### **(this is the same scheme – pages 20 & 21)**

### Interleaved practice

Mixed learning (interleaved practice) means that you alternate topics while studying. So instead of learning the same topics over and over in the same order, alternate which topic you do after another topic.

If you study **1 theme** on a Saturday, this is less effective than if you **alternate** **3 topics** during that same amount of time. Interleaved practice is most effective if the **exercise types or content** of the subject matter are **similar**. That way you have to think about which solution strategy to use for each exercise. For example if you are studying mathematics / statistics: if you always practice 1 subject (probability calculation with return, for example) then you know that you can always use that solution, then only the numbers change. If you then do all probability calculations without return, you learn them, as it were, independently from each other. When you get those subjects mixed up on the test, it is difficult to imagine which solution strategy you should use now. If you had learned the different topics in an alternating fashion, you would have learned not only how the different solutions work, but also what to look for in a question to know which method you need when, for example.

Interleaved practice looks like this:

A close up of text on a white background

Description automatically generated

And in a planned schedule:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Time** | **Monday** | | **Tuesday** | | **Wednesday** | |
| 8 – 9 | Breakfast |  | Breakfast |  | Breakfast |  |
| 9 – 10 |  |  | Prepare Task 5 | 100% |  |  |
| 10 – 11 | Repeat Task 2 | 1e x |  |  | Prepare Task 6 | 20% |
| 11 – 12 | Repeat Task 4 | 1e x | Repeat Task 3 | 2e x | Prepare Task 6 | 40% |
| 12 – 13 | Lunch |  | Lunch |  | Lunch |  |
| 13 – 14 | Repeat Task 1 | 2e x | Tutorial |  | Repeat Task 4 | 2e x |
| 14 – 15 | Prepare Task 5 | 50% | Tutorial |  | Repeat Task 1 | 3e x |
| 15 – 16 | Prepare Task 5 | 80% | Repeat Task 2 | 2e x |  |  |
| 16 – 17 | Sports |  |  |  | Sports |  |

##### **You can fill out a schedule on the next page**

##### **(for both distributed and interleaved practice)**

#### Table for planning week 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Time** | Monday | | Tuesday | | Wednesday | | Thursday | | Friday | | Saturday | | Sunday | |
| Plan | % | Plan | % | Plan | % | Plan | % | Plan | % | Plan | % | Plan | % |
| 7-8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8-9 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9-10 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10-11 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11-12 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12-13 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13-14 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14-15 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15-16 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16-17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17-18 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18-19 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19-20 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20-21 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

#### Table for planning week 2

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Time** | Monday | | Tuesday | | Wednesday | | Thursday | | Friday | | Saturday | | Sunday | |
| Plan | % | Plan | % | Plan | % | Plan | % | Plan | % | Plan | % | Plan | % |
| 7-8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8-9 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9-10 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10-11 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11-12 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12-13 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13-14 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14-15 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15-16 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16-17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17-18 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18-19 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19-20 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20-21 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## **Follow-up** after practicing with the strategies

#### Think

How was it for you to practice these strategies? What obstacles do you think you might encounter?

Obstacles:

|  |
| --- |
|  |
|  |
|  |
|  |

#### Pair

Discuss with your neighbor what you could learn from each other: how would the other deal with your obstacles?

|  |  |
| --- | --- |
| Obstacle | Possible solutions |
|  |  |
|  |  |
|  |  |
|  |  |

#### Share

Share your ideas (yours and your neighbor's), tips and tricks with the group. Pay close attention to what the other groups have discussed, and get new information for yourself from them! Fill them in in the schedule above.

## **Practice what you preach**: using effective learning strategies

Write out the goals you want to achieve for the next session! Use the schedule below. Be **specific**! Make sure that you can actually study based on what you fill out here. Also, make sure it's specific enough to assess next time how well you've adhered to these plans!

|  |  |
| --- | --- |
| **The strategy I will be using** |  |
| How I will do this |  |
| With these materials |  |
| At these moment |  |
|  |  |
| **The strategy I will be using** |  |
| How I will do this |  |
| With these materials |  |
| At these moment |  |
|  |  |
| **The strategy I will be using** |  |
| How I will do this |  |
| With these materials |  |
| At these moment |  |
|  |  |

**Plan** your next week - And plan when you plan the next week! Use the schedules on pages 20 & 21.



# **Day 3: Reflection**

## **How did you deal with obstacles?**

Share, in subgroups of 3 to 4 students, which obstacles you have encountered and how you have dealt with them.

Use the **incident method**. There are different roles within the incident method:

1. the ‘contributor’, the person who presents a problem or challenge
2. the ‘rest’ of the group, everyone who thinks about the challenges, except the contributor
3. the whole group, so everyone who is in your subgroup of 3 or 4 (the contributor and the rest)

The incident method has 7 steps, which are followed one after the other. There are specific people speaking for each step:

|  |  |
| --- | --- |
| 1. Introduce your problem or challenge | Contributor |
| 2. Ask clarifying questions | Rest |
| 3. New insights on the problem/challenge | Contributor |
| 4. Provide advice | Rest |
| 5. Discuss the pieces of advice | Whole group |
| 6. Come up with alternative solutions | Whole group |
| 7. Evaluation | Whole group |

Everyone in the subgroup must take turns, everyone will have the role of contributor once. To guide the discussion, all phases are explained in full once, followed by completion schemes for the various roles.

|  |  |
| --- | --- |
| 1. Introduce your problem or challenge | Talk about the problem / challenge you have been experiencing lately. Don't tell the others how you handled this problem / challenge yet.  *For example*: “I found it difficult to prepare all texts and materials for the teaching sessions. It is so much material, and I have so many other things to do, that in the evening I hardly found the time to prepare properly. |
| 1. Ask clarifying questions | Ask the contributor clarifying questions to get a better idea of ​​the situation. **Do not ask how the student solved the problem yet**! Remember to leave **COA** (it works better in Dutch) at home (Comments, Opinions, Advice) & bring **LSQ** (Listening, Summarizing, Questioning).  *For example*: "What else do you have to do during the week?"; "How much time did you have left to study?"; "At what times during the day did you want to study?" |
| 1. New insights on the problem/challenge | Has the contributor received new insights into his / her problem? Which are they? What had you not thought of, what has now become clearer to you?  *For example*: “I always try to learn in the evening, when I actually always have the evenings fully planned” |
| 1. Provide advice | Take your time to think about possible solutions to the problem: what could the contributor do? **First write down your advice**, then give your advice for a solution to the contributor  *For example*: "You could take a good look at your time schedule to build in a study routine, and make sure you keep the evenings free and start learning at other times." |
| 1. Discuss the pieces of   advice | How did the contributor solve the problem; or tried to solve it? In the group, discuss options for solving the problem and compare them. *The person who introduced the problem chooses an appropriate next step for him / her.* |
| 1. Come up with alternative   solutions | As a group, think of other alternative solutions to the problem |
| 1. Evaluation | Was this helpful to you, as a contributor or as a group member? What do you take from this discussion? |

#### Completion schemes

##### As contributor

|  |  |
| --- | --- |
| 1. Shortly explain your problem / challenge |  |
| 1. What do you notice about the clarifying questions that the others ask you? Is there a theme? |  |
| 1. Enter any new insights into the problem here |  |
| 1. What advice do the others give? If it helps you, you can also see what they have written down |  |
| 1. What is the appropriate next step? Enter here how you will deal with the problem in the future |  |
| 1. Can the group come up with even better alternatives? |  |
| 7. Evaluation |  |

##### As a group member (‘rest’)

|  |  |
| --- | --- |
| The ‘contributor’ was: | |
| 1. What’s the core of the problem? |  |
| 1. What do you not know yet? |  |
| 1. What does the contributor notice? |  |
| 1. What would you like to add to step 3? Write down a short piece of advice. |  |
| 1. What does the contributor choose? |  |
| 1. Can you think of alternative next steps? |  |
| 1. Evaluation – what do you take from this discussion for your own situation? |  |

|  |  |
| --- | --- |
| The ‘contributor’ was: | |
| 1. What’s the core of the problem? |  |
| 1. What do you not know yet? |  |
| 1. What does the contributor notice? |  |
| 1. What would you like to add to step 3? Write down a short piece of advice. |  |
| 1. What does the contributor choose? |  |
| 1. Can you think of alternative next steps? |  |
| 1. Evaluation – what do you take from this discussion for your own situation? |  |
| The ‘contributor’ was: | |
| 1. What’s the core of the problem? |  |
| 1. What do you not know yet? |  |
| 1. What does the contributor notice? |  |
| 1. What would you like to add to step 3? Write down a short piece of advice. |  |
| 1. What does the contributor choose? |  |
| 1. Can you think of alternative next steps? |  |
| 1. Evaluation – what do you take from this discussion for your own situation? |  |

|  |  |
| --- | --- |
| The ‘contributor’ was: | |
| 1. What’s the core of the problem? |  |
| 1. What do you not know yet? |  |
| 1. What does the contributor notice? |  |
| 1. What would you like to add to step 3? Write down a short piece of advice. |  |
| 1. What does the contributor choose? |  |
| 1. Can you think of alternative next steps? |  |
| 1. Evaluation – what do you take from this discussion for your own situation? |  |

## **Personas**

### Get inspired by other students!

Watch the videos & write down for yourself what you can learn from these students. You can use the questions in the completion schemes for this

|  |  |  |
| --- | --- | --- |
| **Linda** | | |
| Why did Linda change her strategies? | |  |
| Which strategies does she apply now? | |  |
| How is she using those strategies? | |  |
| Which obstacles did she run into? How did she deal with those? | |  |
| What has changing her learning strategies brought her? | |  |
| **Max** | | |
| Why did Max change his strategies? | |  |
| Which strategies does he apply now? | |  |
| How is he using those strategies? | |  |
| Which obstacles did he run into? How did he deal with those? | |  |
| What has changing his learning strategies brought him? | |  |

## **Reflection** on the personas

#### What can *you* learn from them? And what do *others* learn from them?

##### ‘Think’:

What can you learn from Linda and Max? Think of an advice you could give yourself based on the video(s):

|  |
| --- |
|  |
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##### ‘Pair’:

Share your advice with your neighbor: what did he / she write down? Could you also learn something from this? Write down some helpful advice that you learned from your neighbor:

|  |
| --- |
|  |
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|  |

##### ‘Share’!

Share your advice with the group! Other members of the group will probably also have good ideas! Write additional good advice that you have received from the group below:

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| --- |
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## **Making new goals**: implementation intentions

Look back at your goals from session 2 on page 24. In the meantime, you should have tried them out, and you have most likely encountered all kinds of obstacles and challenges. We discussed these obstacles and challenges extensively in this third session. Now consider for yourself which strategies you want to use in the future. These can be the same as in session 2, but they can of course also be different effective strategies. As long as it is future-proof.

|  |
| --- |
| Strategy 1 |
| Strategy 2 |
| Possibly strategy 3 |

Now try to make these goals very specific: when are you going to apply which strategy in which way, and what do you want to achieve with it? Make sure to write down the goals in “if…; then… ”rules. We do this because “if… then…” rules are harder to ignore! Because you link your goal to a specific situation, that situation is more difficult to ignore. For example:

* If I have prepared the next task, then I will test myself for a previous task
* If I read an article for the first time, then I will ask myself 2 questions for each paragraph
* If I come home on Saturday after the game, then I prepare the task for Monday
* If I have had my tutorial, then I immediately write down the most important points

|  |  |
| --- | --- |
| **Strategy 1**  IF:  IF: | THEN:  THEN: |
| **Strategy 2**  IF:  IF: | THEN:  THEN: |
| Possibly **strategy 3**  IF:  IF: | THEN:  THEN: |

What have you encountered between session 2 & 3 (think back at the beginning of the session, what did you contribute in the incident method)? How do you ensure that you continue to use the new strategies? Look back at the advice your fellow students gave you and each other, what advice are you going to take into account?

|  |
| --- |
| Advice 1 |
| Advice 2 |
| Advice 3 |

Come up with ways to keep reminding yourself of your goals! For example, think of a place on your desk where you can always see your goals, stick a post-it on your screen, as long as you are reminded!

Also consider backup goals: if your "if-then" rule fails, what are you going to do? How are you going to adjust it? For example (on the intention: If I have prepared the following task, then I will test myself on an earlier task): if I have not tested myself twice after preparing, then I will test myself every night after dinner. (make sure that the alternative is actually an if ... then rule in itself, in this example the second is: if I have finished eating, then I will test myself).

|  |  |
| --- | --- |
| **Back-up 1**  IF: | THEN: |
| **Back-up 2**  IF: | THEN: |
| **Back-up 3**  IF: | THEN: |



# **Additional materials**

## Table about empirical evidence of learning strategies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Learning strategy** | **Description** | **Scientific evidence** | **Training required** | **Applicability in PBL** |
| Practice testing | After studying: Testing knowledge & understanding by answering practice questions or own questions | **HIGH**! | Minimal | High: before, during, after tutorial meetings: asking and answering questions. Check whether your answers are correct! |
|
| Distributed practice | Study information repeatedly over time by making a study schedule that reminds you to go back to specific topics again | **HIGH**! | Planning required | High, review notes from previous tutorials while reviewing the current tutorial notes |
| Elaboration / Self-explanation | After studying produce explanations by answering 'why' questions about facts or explain what you are learning by asking yourself questions | Moderate | Minimal to some | High: Before and during tutorial meetings, asking and answering your own and other’s questions |
| Interleaved practice | Mixing study of different topics (e.g., lung diseases, learning theories, laws) | Moderate | Planning required | Moderate: Useful when learning topics that have characteristics that are similar |
| Re-reading | Restudying text material after initial read | Low | No | Low |
| Summarization | Writing down the main points from a text | Low | Yes. Difficult to learn to do well | Moderate: Helpful in post discussion, but not sufficient for long term learning! Combine with effective strategies. |
| Visualization | While studying the textbook or article, students create an image in their head  of what they are learning | Low | Unknown | Low |
| Highlighting | Marking important information by highlighting or underlining the textbook or article. | Low | No | Low |

## **Motivation** questionnaire

*The next questions are related to your motivation, study attitude and achievement.*

Select the answer option which is the most applicable to your situation where 1 stands for not at all true of me and 7 for very true of me.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *Question* | *Not at all true of me (1)* | *Not true of me (2)* | *Some-what not true of me (3)* | *Neutral (4)* | *Some-what true of me (5)* | *True of me (6)* | *Very true of me (7)* |
| 1. It is important for me to do better than other students |  |  |  |  |  |  |  |
| 1. It is important for me to do well compared to others in this tutorial group |  |  |  |  |  |  |  |
| 1. My goal in this tutorial group is to get a better grade than most of the other students |  |  |  |  |  |  |  |
| 1. I worry that I may not learn all that I possibly could in this tutorial group |  |  |  |  |  |  |  |
| 1. Sometimes I’m afraid that I may not understand the content of this tutorial group as thoroughly as I’d like |  |  |  |  |  |  |  |
| 1. I am often concerned that I may not learn all there is to learn in the tutorial groups |  |  |  |  |  |  |  |
| 1. I want to learn as much as possible from the tutorial groups |  |  |  |  |  |  |  |
| 1. It is important for me to understand the content of this course as thoroughly as possible |  |  |  |  |  |  |  |
| 1. I desire to completely master (understand) the material presented in this course |  |  |  |  |  |  |  |
| 1. I just want to avoid doing poorly in this course |  |  |  |  |  |  |  |
| 1. My goal in this course is to avoid performing poorly |  |  |  |  |  |  |  |
| 1. My fear of performing poorly in this course is often what motivates me |  |  |  |  |  |  |  |

#### Exercise academic motivation – Feedback sheet

This sheet gives you some feedback about your academic motivation and your achievement goals. Take your time to read through the difference approaches. Where did you score the highest? That is an indicator that you are mainly driven by this approach, and that factors described there motivate you to study.

Can you relate to these results and do you agree? What motivates others to study?

Take your time to think about why you study here at university? What do you want to achieve with your studies? And what helps and motivates you, to study?

#### Performance approach

1. It is important for me to do better than other students.
2. It is important for me to do well compared to others in this class.
3. My goal in this class is to get a better grade than most of the other students.

If your answers on these items reflect that these statements are somewhat true for your situation, this means that you do your best to achieve the highest grades and do not want to fail. Because your goal is related to performing better than others, your study methods are focussed on learning everything what is expected on the exam, not what you want to learn. This can lead to the situation that after having passed the exam, on the long term you cannot recall adequately what you have been studying.

#### Mastery avoidance

1. I worry that I may not learn all that I possibly could in this class.
2. Sometimes I’m afraid that I may not understand the content of this class as thoroughly as I’d like.
3. I am often concerned that I may not learn all there is to learn in this class.

These items refer to the type of learning called mastery avoidance. If your answers on these items reflect that these statements are somewhat true for your situation, this means that you are intrinsically motivated. That means that you learn because you are really interested in the topic, not because you learn for passing the exam. On the same time you feel insecure about passing your exam and you do not know how to cope with the stress of this uncertainty.

#### Mastery approach

1. I want to learn as much as possible from this class.
2. It is important for me to understand the content of this course as thoroughly as possible.
3. I desire to completely master the material presented in this class.

These items are related to what is called mastery approach. If your answers on these items reflect that these statements are somewhat true for your situation, this means that you (as in the performance approach) do your best to get high grades and do not want to fail. But in this case you are not afraid to fail. You are intrinsically motivated and process the materials you have to study on a deep level. You really want to understand what you are studying and you do want to be able to recall it on the long term, not just for passing the test.

#### Performance avoidance

1. I just want to avoid doing poorly in this class.
2. My goal in this class is to avoid performing poorly.
3. My fear of performing poorly in this class is often what motivates me.

This type of learning is called performance avoidance. If your answers on these items reflect that these statements are somewhat true for your situation, this means that you are insecure about your learning methods. Because you worry so much about your performance, you have difficulties with your concentration, but you still try to prepare as good as possible for the exam in order to pass the tests. You have the feeling that you did not find the right learning method yet.

**References:**

Elliot, A.J. & McGregor, H.A. (2001). A 2x2 Achievement Goal framework. [*Journal of Personality and Social Psychology*](https://www.ncbi.nlm.nih.gov/pubmed/11300582)*, 80*(3), 501-19.

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