

Module 1 / Chapter 3

Teaching and learning

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3.1 Objectives



Motivation

Persons completing this module

- correctly distinguish intrinsic motivators from extrinsic motivators based on concrete examples from everyday training-course experience.
- independently and correctly match course-participant needs to the proper Maslow Pyramid level.
- independently list at least six situational factors having an impact on learning motivation.

Process of memory storage

Persons completing this module

- correctly explain, without using sources, how information is stored and name the three stages of memory storage in the correct order.
- explain, using examples, at least three measures to promote brain activity.
- correctly name, from memory, the four forms of acquiring information.

Learning history

Persons completing this module

- describe, on the basis of their own learning history, at least two consequences which they can apply in their own everyday training work.

3.2 Motivation

How does motivation arise?

People always need to be pushed or pulled

Asking about motivation is asking why people behave in the ways they do: Why does a person do one thing and not another? Why does a person take action at all?

The answer is:

The goal of human action is to satisfy the individual needs prevailing at a particular point in time.

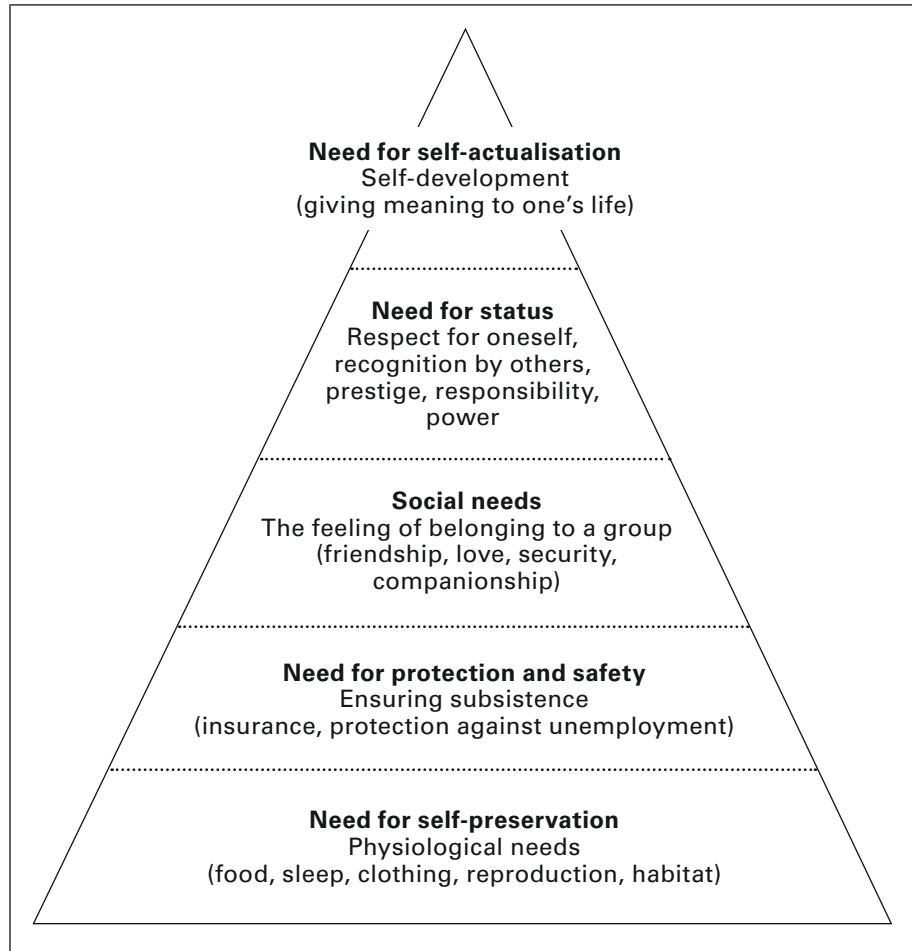
Every need creates a condition of tension. In order to reduce this tension, the human being mobilises forces driving him to act. We call these drives motivation.

Motivation performs three vital functions:

- It drives us to be active: We want to do something.
- It gives direction to our actions: We want to do a particular thing.
- It assigns differing degrees of weight to our actions: We are more or less interested in the individual things we do.

Hierarchy of human needs

Science assigns human needs to various categories. The most well known of these is A. H. Maslow's hierarchy of needs.



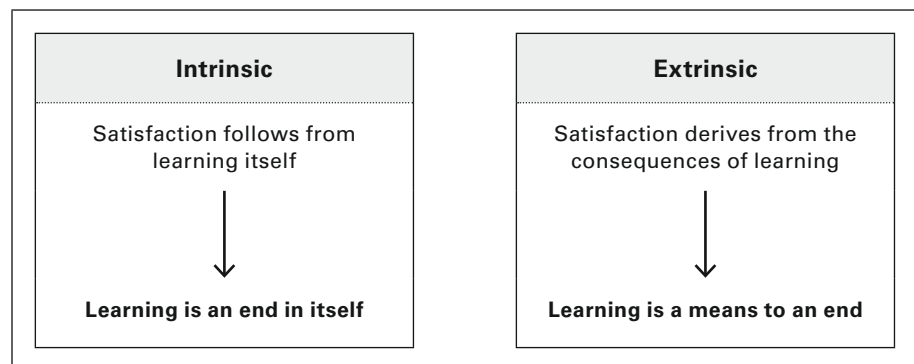
Maslow's Pyramid of Needs

The significance of motivation for learning

Motivation facilitates learning Motivation is an indispensable prerequisite to learning.
If there is no motivation, there will be no learning.

Intrinsic and extrinsic motivation

As a rule, motives are divided into intrinsic or extrinsic motives, depending on whether they are directed towards a goal itself or towards a purpose which is aligned with that goal.

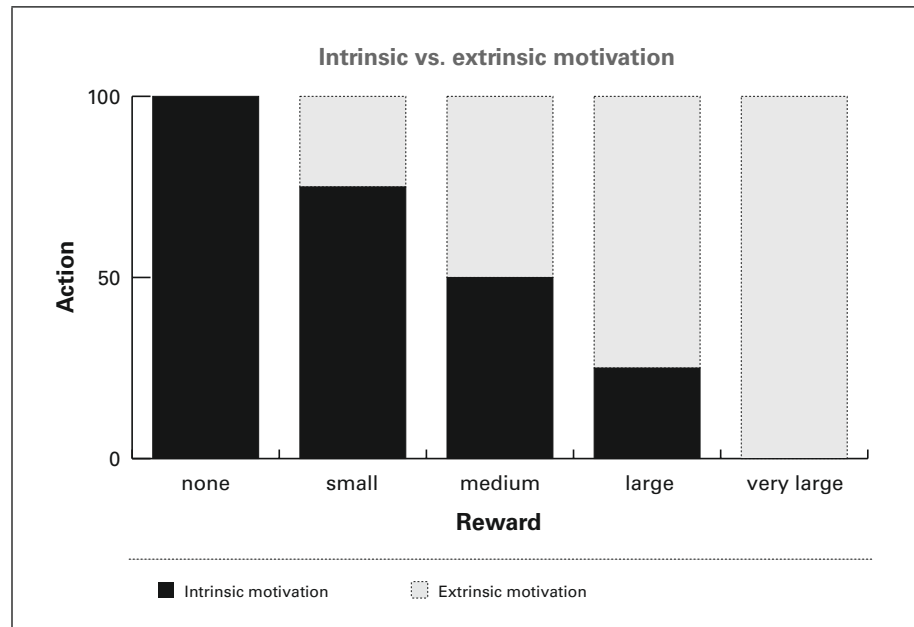


Intrinsic and extrinsic motivation

For example, an independent entrepreneur who has fulfilled a lifelong dream of owning a boutique is primarily operating from her own internal motivation (intrinsic). She will willingly face quite a few inconveniences and obstacles because she sees meaning in the challenge she has set for herself and experiences inner satisfaction in pursuing it.

By contrast, a person will be primarily extrinsically motivated, i.e. his/her motivation will come from outside himself/herself, if, for example, the main incentive for achievement is recognition or financial reward.

The following schematic diagram is intended to illustrate the distinction between intrinsic and extrinsic motivation:



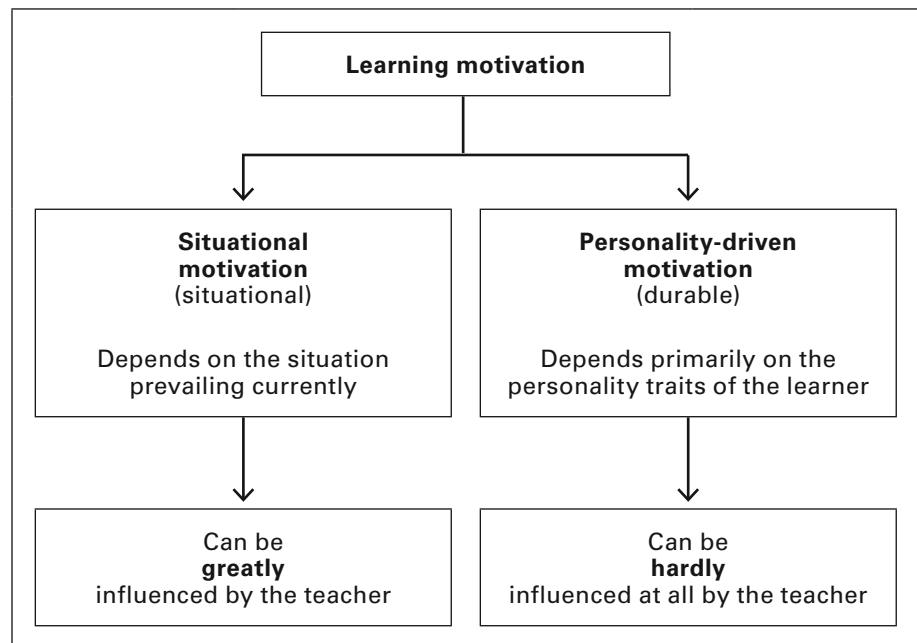
Distinction between intrinsic and extrinsic motivation

Intrinsic motivation is superior to extrinsic motivation. A person whose action is driven primarily by intrinsic motives will experience greater satisfaction from his life than a person whose actions are driven predominantly by extrinsic motivations.

However, in day-to-day practice, it is not possible to distinguish these motives cleanly. An intrinsically motivated person will also more or less anticipate the social effects of his/her learning, i.e. even if he/she has a great deal of interest in what he/she is learning or in the actions he/she is taking, he/she will nevertheless also be thinking somewhat of the impression he/she will make on others with his/her knowledge and ability.

Factors influencing learning motivation

Educational psychology distinguishes between situational and personality-driven factors influencing motivation to learn. Situational factors influencing such motivation are found in the educational setting or in the assignment itself. Personality-driven factors are located in the more-or-less durable personality traits of the learner.



Factors influencing learning motivation

Situational factors influencing learning motivation

Instilling curiosity **Novelty** It is well known that one can arouse the interest of a learner particularly where the material or task being presented contains something new. Where curiosity, fascination or expectation are lacking, no willingness to learn will be stimulated.

Curiosity is the most basic of all drives behind learning. It serves as the motivation for acquiring even alien, unfamiliar material and paying attention to it.

Appeal of the task itself

Everyone knows how quickly enthusiasm can be aroused – particularly amongst younger people – for a given challenge or activity and how quickly that interest can then also suddenly and completely dissipate.

This passion for a particular thing or subject can be due to a wide variety of causes. Usually it is prompted by examples and without any actual goal in mind, but the commitment generated is all the more remarkable (e.g. collecting objects, sporting activities and other hobbies).

Be mindful of level of difficulty of tasks chosen **Degree of achievability / The appeal of success** Whether one can motivate others by assigning them tasks to solve will depend on the level of difficulty of the task. Where the learner perceives a task as so difficult that solving it no longer seems like an achievable goal, that task will no longer be a driver for motivation. By contrast, if a task is so easy that solving it is a matter of course, it will mean little to the learner to succeed with it, and thus no motivation will result.

In an education setting, you must therefore strive for an intermediate degree of achievability.

Personality-driven factors influencing learning motivation

Personality-driven factors influencing motivation to learn are shaped by genetics and the environment and are almost impossible to influence in the short term.

Needs

Needs have an impact on motivation for learning

Depending on the intensity of the individual learner's needs, needs (as per Maslow's theory) may have a substantial impact on motivation for learning. Here are a few examples:

- In terms of the need for identification, the ambition to orient one's own actions to emulate a role model may be an extremely strong motivator to learn.
- The need for approval and recognition, i.e. the desire to receive as favourable as possible an assessment of oneself and one's performance, is likewise a motivator.
- The need for self-determination is very pronounced in most people. Where possible, learners like to be able to choose their own route towards a goal, make use of their own life experience and apply their personal abilities and skills.

Motivation for achievement

Motivation for achievement is the most important personality-driven factor influencing motivation and this refers to the desire for achievement, i.e. enjoyment of achievement itself. The degree to which an individual is motivated to achieve is set at a very early point in childhood. Parents play a very significant role in this aspect of motivation.

Appeal of the subject

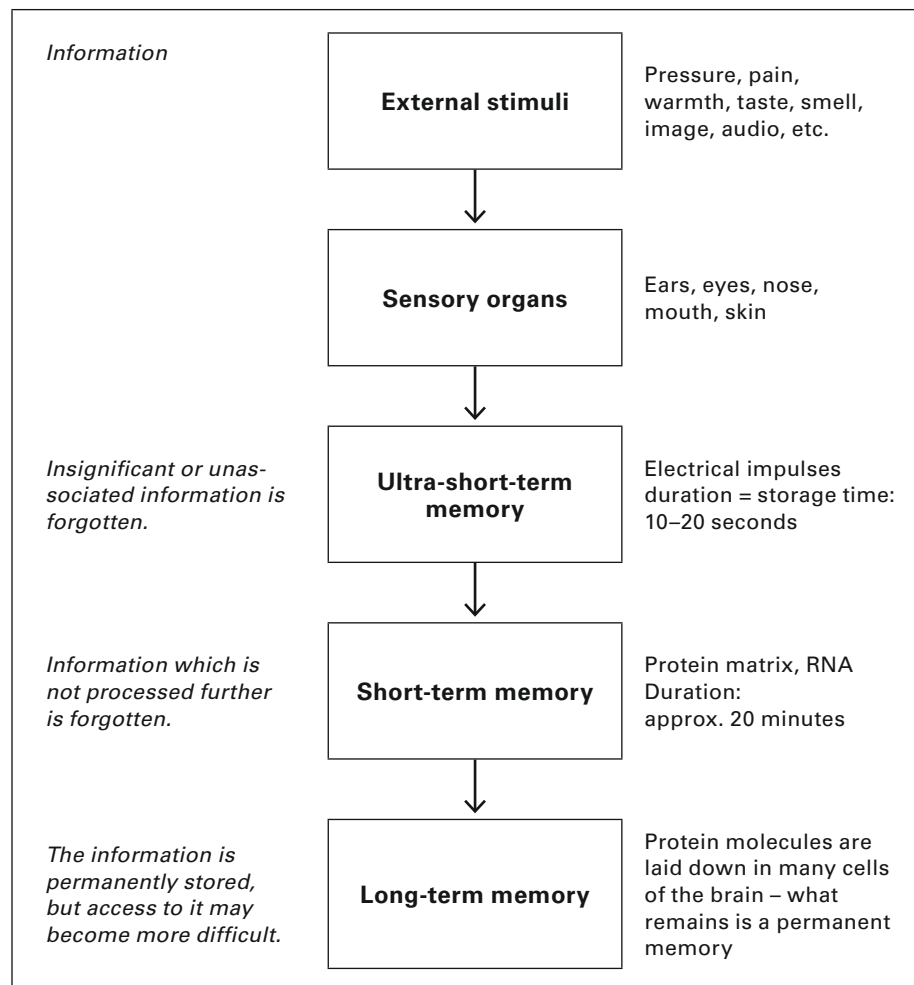
The attitude of a learner towards a particular subject will be heavily influenced by the attitude those around that individual have towards that subject. The greater the prestige of, say, a profession in society, the greater will be the appeal to pursue that profession.

Implications for training

- Intrinsic and extrinsic motivation are complementary*** Motivation is an indispensable prerequisite to all learning, and intrinsic and extrinsic motivation are mutually complementary. People learning something because they are intrinsically motivated – because they are interested in the thing itself – will need few stimuli from those responsible for their training or from the environment. Such students will be already quite willing to learn as a general proposition.
- Personal success can turn extrinsic motivation into intrinsic motivation over time, i.e. a learner may initially only put forth effort on a subject, for example, because he/she will receive recognition from those in his/her environment for his/her achievement. If he/she experiences success, it is quite conceivable that he/she will suddenly begin to develop interest in the thing itself. (Example: A first-aid course is mandatory for a driving licence. It may be that a course participant simply attends this course because he/she is required to but discovers in the process that he/she greatly enjoys the field and later even becomes a paramedic.)
- Perceiving learners as individuals*** A trainer has only a few options for motivating students he or she can deploy directly and in the short term. His or her efforts may founder because of existing attitudes of the learners (personality-driven factors). Thus, the art of being a good teacher lies in the ability to engage with learners as individuals even in a classroom context and to have a motivational impact on them. However, individualising one's teaching can only be successful if the trainer first analyses the interests, knowledge and skills of each individual learner.
- Facilitating a sense of achievement*** In the absence of any sense of achievement, all progress and learning will come to a halt, sooner or later. For this reason, one should only set learning objectives high enough to be achievable with a reasonable amount of effort. You should strive for an intermediate level of achievability.
- Stimulating interest and imagination*** It is imperative to stimulate learners' interest and imagination repeatedly. Unfamiliar material, if presented properly, will arouse the curiosity of learners, which is crucial to learning.

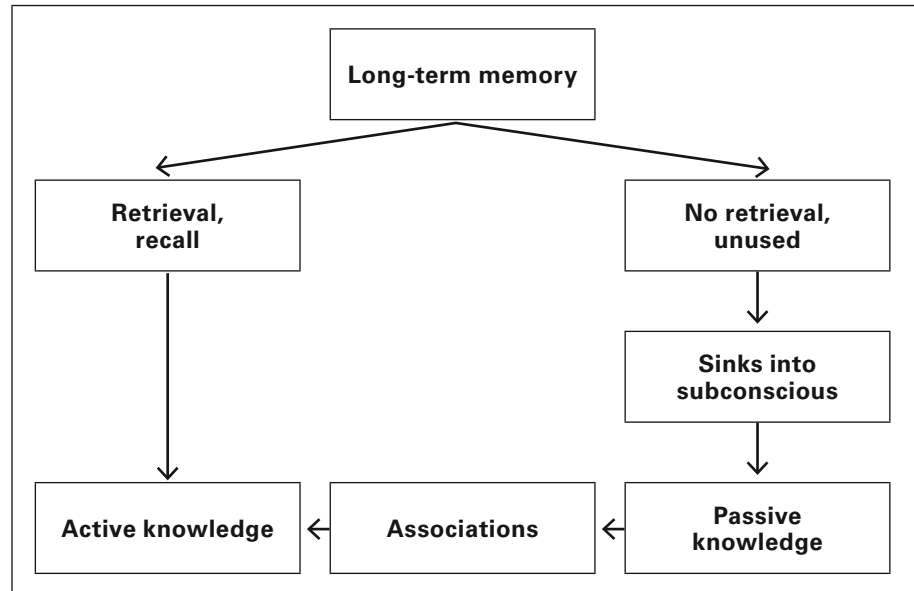
3.3 What is learning?

The storage process



How information is turned into permanent memory

Active and passive knowledge



Without retrieval, newly acquired knowledge is quickly submerged into the subconscious.

Ultra-short-term memory

During this initial stage of memory storage, momentary or ultra-short-term memory, the information which is taken in remains for 10-20 seconds in the form of measurable electrical currents and then inevitably dissipates if the information has not found any points of association to which it might be tethered. Such information, like street noise or the sounds of a foreign language, simply pass by us. No attention is focused on them. There are no associations present and nothing is stored.

Short-term memory

However, if information has triggered particular associations, then the next stage of learning is the incorporation of the information in the short-term memory (STM). Incorporation of information is associated with the chemical synthesis of nucleic acid, RNA, and lasts approximately for 20 minutes. Here is where the information becomes memorised material for the first time.

It is only when timely "copies" are made of this RNA in the form of protein molecules that this information passes into long-term memory (LTM).

Long-term memory

In a further stage, so-called “consolidation”, the information is ultimately laid down and solidified, together with all of the associations, through multiplication of these protein molecules. Now, a particular memory can be fully recalled from storage even after decades, whether it be a feeling, a scent, an image, a melody or an experience.

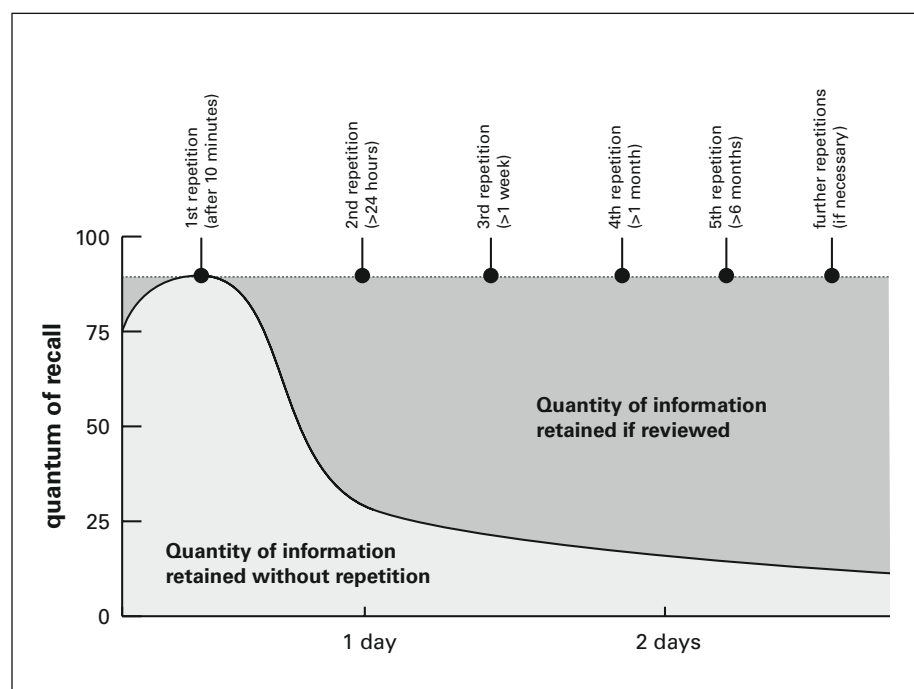
Filters

As much as we may be irritated, when learning, by the fact that it is always necessary to overcome these two initial steps before material is incorporated into long-term memory, we would be lost without the filter effect provided by the stages of ultra-short-term memory and short-term memory, and we would be paralysed by the sheer weight of information.

3.4 Retention and forgetting

Preserving knowledge through repetition

By deliberately repeating or reviewing newly acquired knowledge, it is possible to achieve a maximum retention ratio.



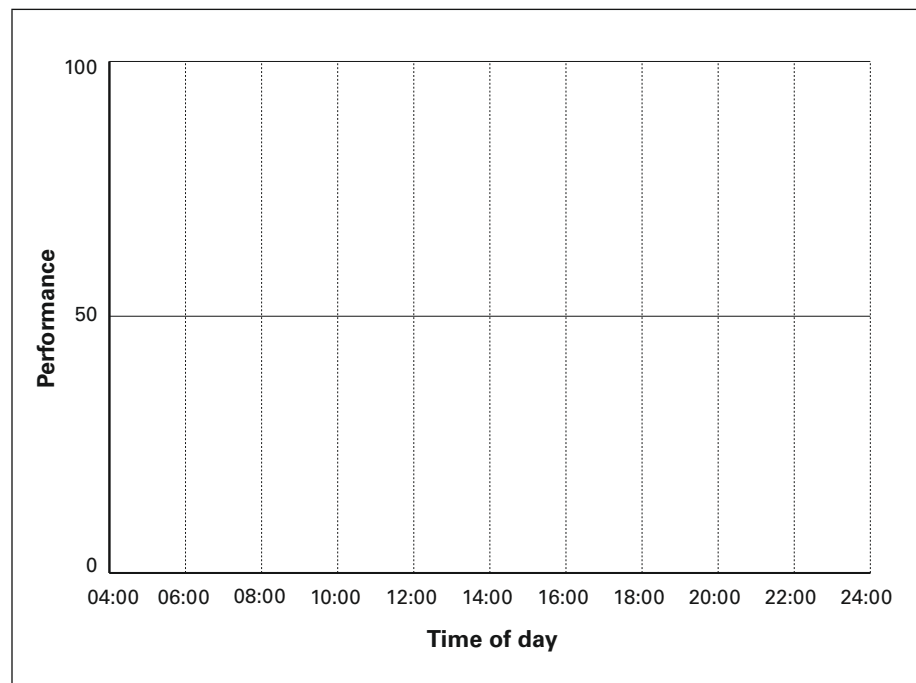
Forgetting curve

3.5 My personal performance

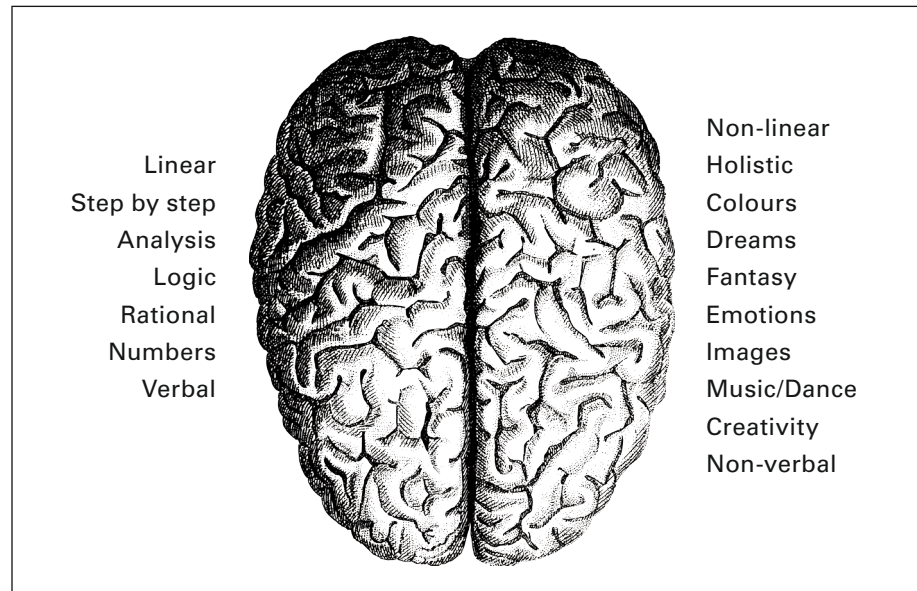
Are your course participants night owls or early risers? Every human being has his or her own, very personal performance curve.

The performance curves of your course participants will not necessarily mesh with your own. When planning learning activities, it is important to take account of the individual performance curves of the learners to achieve optimum learning.

Diagram your personal performance curve:



3.6 The two brain hemispheres



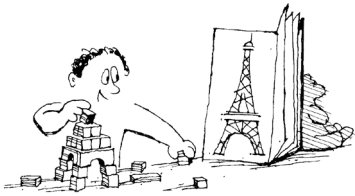
Model of left- and right-brain hemispheres

3.7 Learning types

Every individual learns differently

Every person uses various input channels to assimilate information. In this respect, abilities are not evenly distributed. One person may have a particular gift for perceiving the world by sight (visual type), another might tend to focus more on hearing (acoustic type), a third might learn particularly by means of manual or other physical activity (haptic or motor type) and a fourth by means of abstract formulas, i.e. through pure intellect (intellectual type).

However, the individual learning types do not occur in isolation; every person has aspects of each of the learning types.



The visual type

This type learns best by seeing (photos, images, sketches, drawings, etc.). His or her preferred input channel is his or her eyes. He or she is able to assimilate what he or she learns particularly if he or she is presented with forms which are as visual and illustrative as possible. Graphic depictions, sketches and drawings constitute particular learning aids for him or her, especially when he or she has produced them himself or herself. He or she works with colours and underlines important points. Films substantially enrich his or her learning process.



The motor type

This type learns best by moving, by feeling, by moving his or her hands and his or her entire body. He or she will learn particularly well wherever he or she is able to immediately apply what he or she has read or heard.



The acoustic type

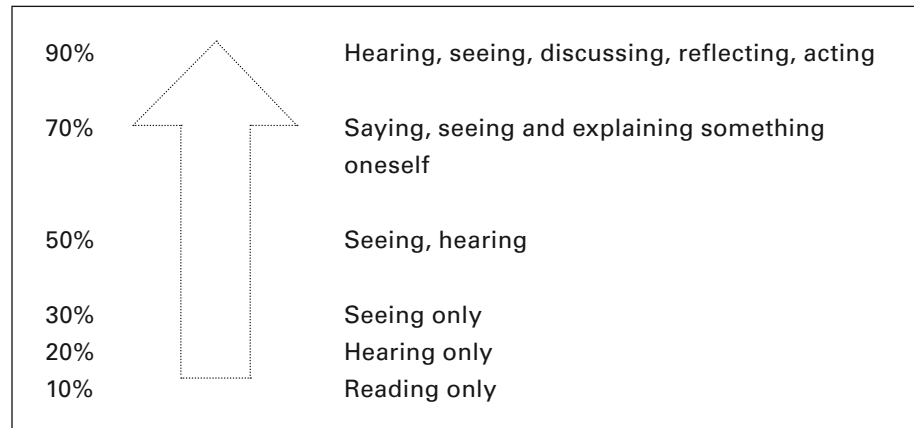
This type learns best by hearing (lecture, radio, tape, etc.). His or her preferred input channel is auditory. He or she is able to assimilate sounds of all kinds, music, voices very well. For this reason, he or she often reads aloud when learning and holds little lectures for himself or herself. He or she is the person who "thinks aloud". For example, he or she will quickly learn foreign languages by oral lessons.



The intellectual type

This type learns best through the use of abstract concepts. He or she uses his or her pure intellect and thinking processes to reach new conclusions and discoveries. The quiet reading of a text on a particular subject area and mental reflection on it will lead to his or her learning success.

3.8 The retention quota



The more of the senses that are simultaneously engaged, the greater the learning success will be.

3.9 Learning styles

(Source: "Lehren kompakt" by Ruth Meyer, h.e.p. Verlag AG 2004)

Preliminary remarks

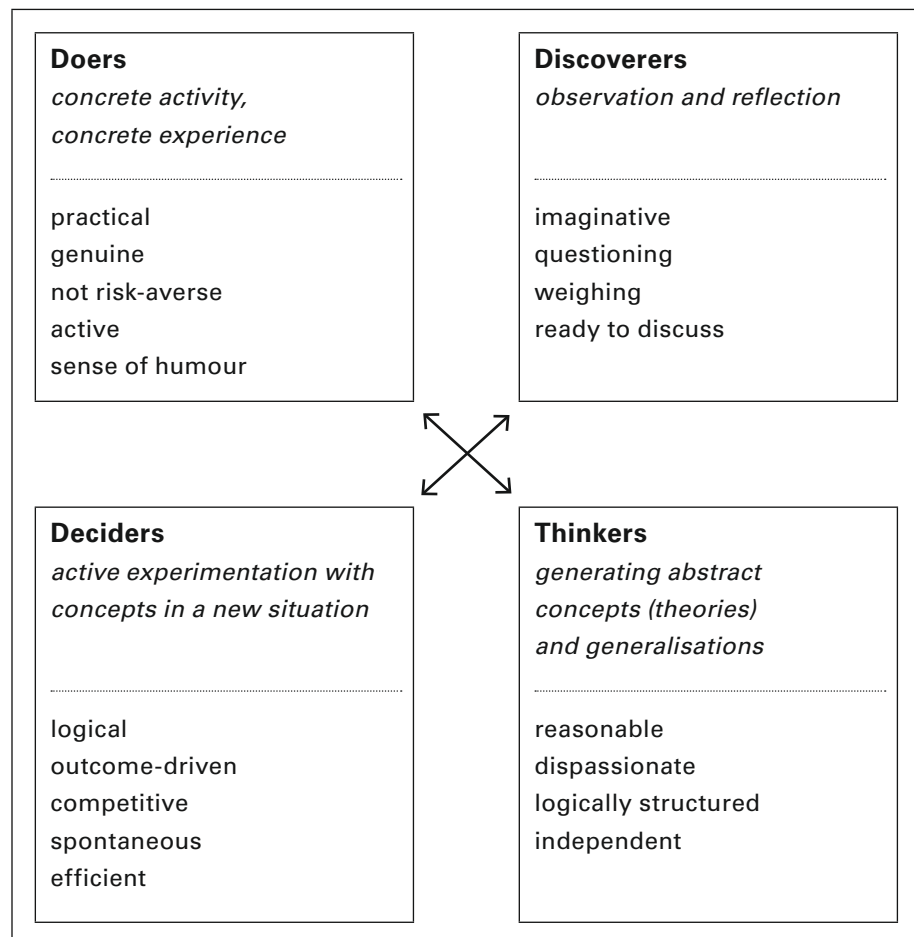
It is impossible to do things to suit every person. Nevertheless, this is precisely what is expected of a teacher. Learners are merciless: If one does not do things to suit them, that means that one is a bad teacher. Only a few learners are aware of the fact that their own learning behaviour and their own motivation are at least as determinative of their success in learning as what the teacher does. However, you as the teacher know this. You know that your learners have different, individual experiences with learning and that some of them might, for example, dislike group work for this reason or be afraid of making mistakes. You should not take these preferences and dislikes personally, but you do need to react to them with understanding and potentially change the way you present material. Which learners bring what characteristics to the table will depend on their learning styles. How to handle disparate learning styles is the topic of this chapter.

As a trainer or teacher, you must give feedback to learners and you will have to confront them when they do something undesirable or when their performance results are poor. Precisely because you are dealing with very distinct individuals, you will indeed need to approach them individually. Feedback and constructive criticism in one-on-one meetings are an art to be mastered.

Taking account of learning styles

There is a fairly large number of different ways to learn. Whereas some people prefer to attend a good presentation by someone else, others might prefer to try something out themselves. You will never be able to suit all the people all of the time – but you can use various approaches to accommodate the different learning styles.

Pursuant to the theories of David Kolb, one distinguishes four different learning styles: Discoverers, thinkers, deciders and doers. You may be certain that your classroom will include representatives of all four learning styles. To recognise them, you do not need to do any tests. Their unilateral extreme styles will be revealed by what they say and do. When the different learning styles have to work together, their diametrically opposed styles will frequently come into conflict.



Recognising learning styles: Discoverers

You will recognise discoverers from the fact that they

- are not even present if they think that the topic will not benefit them.
- will be working somewhere on a programme that you are guaranteed not to have assigned them.
- just barely finish their group project and unfortunately have to improvise their presentation.
- like discussion.
- would rather teach themselves things instead of attending a class or doing what they are assigned to do in the class.

Because discoverers

- perceive their environment in very sharp relief.
- possess vivid imaginations.
- never tire of gathering facts.
- question everything.
- are able to tolerate opposing views.
- are reserved and able to learn from others' experiences.
- recognise problems.
- defer decisions because new facts might come to light.
- often have the role of "wind vanes".
- seem "soft".

Discoverers learn best

- through their own experience and the experience of other people.
- by processing impressions and perceptions (they need lots of time for this).
- by comparing disparate opinions and points of view.
- from visual presentations.

How to deal with discoverers:

- experiences and observations
- descriptions, investigations
- exchange of ideas
- giving them enough time to weigh and decide

Discoverers avoid

- the spotlight.
- spontaneous action.
- constraints, tight directions.
- disruptions, distractions, shortcuts.
- theory without practical relevance.

Recognising learning styles: Thinkers

You will recognise thinkers from the fact that

- they tell you that your teaching materials are contradictory.
- they ask for definitions.
- they finish their group projects on time and have prepared a dry presentation.
- they would rather benefit from your knowledge instead of generating something of their own.

Because thinkers

- have internalised models consisting of theories, concepts, logical rules.
- seek generally valid conclusions.
- are able to develop theories.
- are able to logically weigh various factors.
- seek objectivity, logic, precision.
- can dispassionately categorise things.
- have a tendency towards perfectionism.
- often deny their feelings, think unemotionally and impersonally.

Thinkers learn best

- in structured learning situations with clear goals.
- from teaching material that is part of a system/model.
- from linkages established between ideas, events and situations.
- if they are able to ask questions about the logic and philosophy underlying the material.

How to deal with thinkers

- use concepts and graphic depictions
- analyses
- logical arguments
- establish links between material

Thinkers avoid

- feelings.
- lack of structure.
- material which is unclear, unsystematic, superficial.
- working with people whose standards aren't as high as theirs.

Recognising learning styles: Deciders

You will recognise deciders from the fact that

- they are “all business” and expect you to transmit information efficiently.
- want to know whether you have actually tried out in practice what you're talking about.
- have finished their group project a good while back and have even gone on to answer some personal e-mail.
- observed that the class has now talked about a topic for long enough and that they should move on.

Because deciders

- want to implement ideas, theories in practice.
- logically and directly resolve problems.
- are pragmatists (“Whatever works”).
- are outcome-driven, seek solutions and recipes.
- proceed directly and intelligently towards their own goal.
- neglect social contacts.
- only discover what they already know.
- create a hectic atmosphere.
- are quick to judge.

Deciders learn best

- when implementing a theory in practice.
- where there is a link between the material being taught and a problem from their own real life.
- where techniques are being taught that actually work.
- by exercises using checklists.

How to deal with deciders:

- competition, role play, current problems
- judgements, taking positions
- spontaneous challenges
- working, presenting and leading a team

Deciders avoid

- passivity, repetition.
- individual assignments.
- differentiated observations and descriptions.

Recognising learning styles: Doers

You will recognise doers from the fact that they

- have already turned on their computer before you have said hello.
- are still chatting after you have actually begun speaking.
- failed to finish their group project because they did not budget time.
- like to be in the spotlight sometimes.

Because doers

- are open to everything, particularly practical experiences.
- are flexible, don't allow theoretical obstacles to hinder them.
- are enthusiastic about anything new.
- are driven by the philosophy that one has to try everything out once.
- love challenges and risks.
- overcome obstacles.
- create pressure for themselves and others.
- have a tendency to be blindly activist.
- act before thinking.
- steamroll over others.

Doers learn best

- from challenging and exciting assignments.
- if the teaching programme is multi-faceted and uses forms of work promoting activity.
- in groups where there is a place for humour and laughter.
- if they are able to be in the spotlight from time to time, or assume a leading role.

How to deal with doers:

- directions and feedback by practitioners
- topicality, genuine problems
- develop action plans, give suggestions, find simplifications
- immediately implement what they have learned

Doers avoid

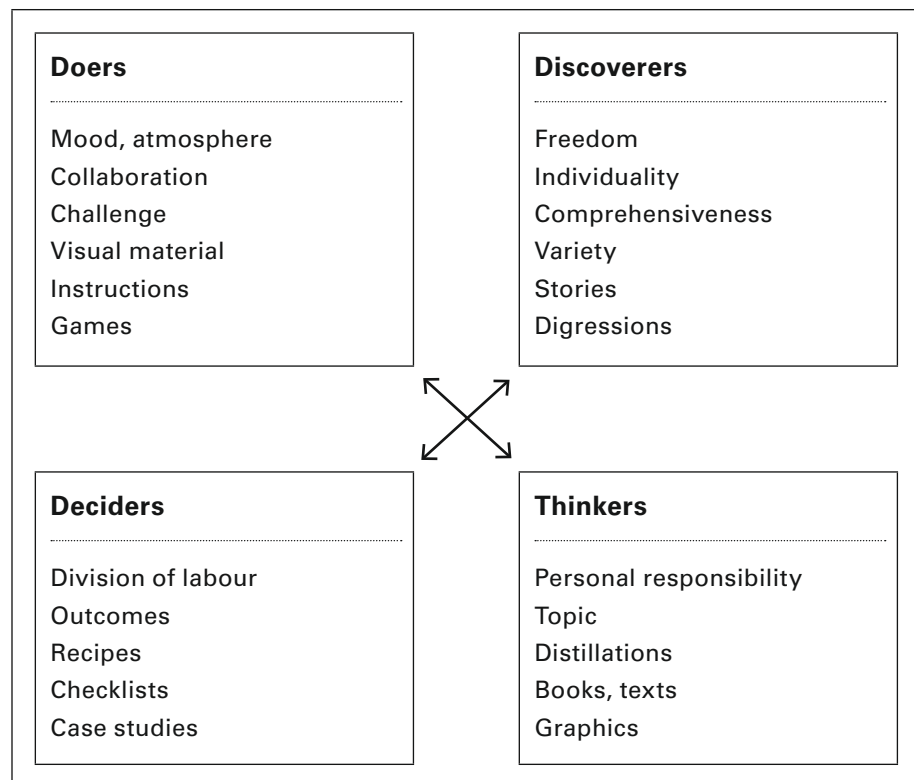
- futility, anything that is not taken from real life.
- too much theory.
- unclear instructions on what they need to do.
- activities that are in conflict with their own feelings.

Didactic consequences, from the perspective of learners

	Discoverers	Thinkers	Deciders	Doers
Form of presentation	Brief presentation, discussion Classroom, discussion, supported by visual and graphic aids It is o.k. to digress Raise current topics	Lecture Link up with previous knowledge No experiments Provide appropriate visual aids for the content Charts, graphs	Present case studies Furnish examples of your own and from real life What can I use this for? Moderation	PowerPoint presentation Use the blackboard Keep your show entertaining Visual material
Form of learning	Showing Experiencing Discussing problems Self-study Drawing consequences	Clear targets Proceeding logically Derive the theory oneself from texts Well-structured presentations	Being involved The course should have something to do with real life Use checklists	In a group, use humour Present findings oneself Vary presentation Tension
Exercises	No recipes, just hints Gather experiences and report on them Observe and describe Heterogeneous group	Challenging (mental) tasks Analogies Develop theories Analyse ramifications Individual projects	Recipes No novelties Mnemonics Try out and assess processes Homogeneous groups	Trying things out in practice Use attractive material to create something Challenging Team projects
Course materials	Summaries Case studies, reports of experience	Books Documents with a clear structure, indicating sources Complete	Oriented to real-life Using examples and checklists	To be supplemented by student him-/herself Use assignments Use humour to illustrate
Instructor	Supporter Cooperative, competent Challenging	Expert Needs particularly to be substantively competent	Practitioner Needs to "know what he or she is talking about" Takes a clear leadership role, is unambiguous	Has an appealing personality Particularly needs to be competent Solid

Didactic consequences, from the perspective of instructors

The figure below shows the teaching tools preferred by instructors of particular learning styles. Instructors tend to neglect the tools used by the styles diametrically opposed to theirs.



Instructors who identify almost exclusively with discoverers

Discoverers sometimes teach courses because they are interested in the experiences of the student. They take the view that the instructor of every course will learn a lot from it – which is in fact the case because discoverers are able to learn from the experience of others. Nevertheless, discoverers should take care to provide for concept and structure. The role of the instructor as a teacher is often neglected in terms of preparation and presentation. Discoverers should strive to take account in their considerations of the reason the students are attending the course and what they wish to learn from it for real life. Don't be angry if you have unmotivated and bored learners; you should ask them where they see their difficulties in assimilating the material and give them suggestions for resolving these. Because a lot of deciders and doers would rather make presentations than you, allow them to do this rather than torture yourself.

Instructors who identify both with discoverers and thinkers

(Kolb test: Assimilators)

You fluctuate between managing the topic closely and affording a large degree of personal freedom to your learners. Time constraints are a horror to you. This is why you often tend to burden learners with excessively long theoretical presentations and insufficiently structured exercises in which they can try things out for themselves. You must absolutely pay close attention to practical relevance. Allow the students to require you to provide clear rules and unambiguous answers. Don't hedge your answer to them, and do make sure to give them the opportunity to try things out in practice and evaluate them.

Instructors who identify almost exclusively with thinkers

Thinkers sometimes teach courses because they want to develop their theories further. They leave their ivory towers to have an exchange of ideas with others. They are less interested in individuals than in the knowledge and interest that students bring to a topic. This tempts them to pay little attention to group dynamics and the personal needs of students. You absolutely need to take account of the fact that you are dealing with people, who like to learn through all of their senses. Don't be stingy with things to look at, visual materials and opportunities to try things out in practice.

Instructors who identify both with thinkers and deciders

(Kolb test: Convergents)

You like to be a trailblazer, you work towards a particular solution and it is difficult for you to structure a learning situation openly because you put so much importance on a correct outcome. Take your students off their chain and give them the opportunity to do and find out things themselves. Allow for originality and spontaneity and don't judge too quickly as to whether something is correct or incorrect. Give your learners enough time to process your theories and conclusions; not everyone thinks and draws inferences as quickly as you do! Your standards and desire for comprehensiveness may make classroom exercises too much like recipes for some discoverers, and your classroom materials may seem too cut-and-dried to some doers. The standard you set for yourself as an "expert for everything" in theory and practice is not necessarily everything your students want and expect. There are many students who need to be approached by the human being behind the instructor in order to create an ideal learning environment.

Instructors who identify almost exclusively with deciders

Deciders sometimes teach courses because they want to pass on their own professional experience and knowledge. When they do this, they have a tendency to steamroll over students and to restrict students' own activity. They seem to operate by the motto "My way or the highway" – it is decidedly difficult for them to tolerate different views. Make sure that you give students enough time for classroom discussion and give them the mental space for this, as well. You don't always have to be the supplier of everything and stand in the limelight – others, too, have important and correct things to contribute.

Instructors who identify with deciders and doers

(Kolb test: Accommodators)

Give students the freedom to think and learn for themselves. Don't structure their assignments too precisely. Give them sufficient time – not everyone is as quick to make decisions and take action as you are. By all means, incorporate theoretical phases and individual projects into your lessons – avoid barrelling hectically through material, and keep your schedule in sight. Less is often more!

Instructors who identify almost exclusively with doers

Doers sometimes teach courses because they cannot say no and love challenges. Their motto is "Let's do it." Sometimes this tempts them to prepare their theoretical teaching material insufficiently and to occupy the students with exercises that are not very efficient. You should absolutely take time to prepare and carefully select and weigh the material to be presented. Adhere to your lesson plan and don't allow the students to tempt you into simply having a good time together. Thinkers in your class will otherwise quickly find it too superficial and too much like a game.

Instructors who identify with doers and discoverers

(Kolb test: Divergers)

You should consider that, in the triad topic/group/individual, the “topic” is often out of equilibrium. Consciously create a counterweight to this: Don’t be stingy with theoretical information. You should at least give tips as to where students may find background information and broader contextual material. Pay attention to making your course materials complete and logical. You should also incorporate testing into your lesson plans. Leave the class sufficient time to process the material. You sometimes seem somewhat abstract and indecisive to a decider. Be careful to make clear at all times what is correct and what is incorrect and that you will not leave students in the dark as to what is being expected of them. Allow people to work more independently and without your help. And when they do ask for help, they will need more tips on how to proceed than personal encouragement.

3.10 Learning biography

Digging for hidden treasure

From earliest childhood on, we have a wide variety of learning experiences, whether consciously or unconsciously. These experiences have a lasting impact on how we think of teaching and learning. Even if we have a great wealth of theoretical knowledge about learning, in everyday learning situations, we still resort again and again to our experience. The sum of our many and varied learning experiences is a wealth of knowledge which is often little used. This is actually a shame, because there is a lot of knowledge to be gained regarding good and bad learning strategies, about motivation and demotivation, about confidence and helplessness. Working in a specific way to uncover one's own learning history is intended to facilitate access to that hidden wealth of experience and the insights and obstacles it contains.

Experience with learning is such a matter of course for us that we automatically assume that everyone else thinks of learning in the same way. However, this is not the case. Every individual's learning history is distinct from everyone else's, just as every personality is unique. The more conscious we become regarding our own learning history, the less we will make this obvious assumption. We will be able to recognise differences and work with them more consciously. This is why it is so important for teachers and trainers, in particular, to become more conscious of their own learning history.

Goals of biographical work

The goal of biographical work is to recall one's own experiences of learning, to see interconnections (potentially new ones) and thus to come to a more in-depth awareness of how one thinks of learning and teaching. However, the goal of this exercise is also to get to grips with others' learning histories, to observe differences and to derive more general conclusions about learning processes. In terms of effective, pedagogical action, what is decisive is that these statements are linked to one's own experiences and not derived merely from theories.

My learning history

Mentally travel back into your own learning history and note down, in bullet points, situations in which you would say as to a topic or a skill: I was learning something there. Don't think merely of school-related situations, but rather also of family, leisure time and work. The experiences can be positive ones and difficult ones. Then you should select two or three situations which are particularly typical for you and look somewhat more closely at them:

- Which individuals played a role for you at the time and what was your relationship with them?
- What other factors were important in that situation?
- What was your motivation in that situation?
- Do you remember how you felt in that situation?
- How did you notice later that you had actually learned something?
- When viewed in retrospect, are these learning situations successes or failures? To whom or what do you attribute either or both of these?
- Other recollections that you associate with this situation?
- What conclusions do you draw in connection with your preferred learning style and type?

3.11 Tests

Brain dominance test

These 28 questions, which you respond to by checking yes or no, will determine whether you think and feel more with the left or right side of your brain. "Yes" means the question largely applies to you, a "No" means the question largely does not apply to you.

Question	Yes	No
1. Are you patient and do you look at a task from various angles before you ultimately arrive at a solution?		
2. Are you able to plan and describe things well in broad strokes?		
3. Do you like putting things in tidy order and do you pay attention to keeping things in the proper sequence?		
4. Do you generally think very logically and are you able to recognise why people act in a particular way?		
5. Can you say a few words in multiple foreign languages?		
6. Are you usually able to find the right words to describe your feelings?		
7. Is it easy for you to categorise and sort documents?		
8. Are you objective in your views? Do you first try to find out the facts before making a decision?		
9. Do you love puzzles and word games?		
10. Do you like to find the meaning behind something that seems to lack a meaning?		
11. Do you appreciate having figures and facts in a logical sequence?		
12. Do you appreciate an orderly and tidy workplace?		
13. Do you have little time?		
14. Are you interested in technology and technical solutions?		

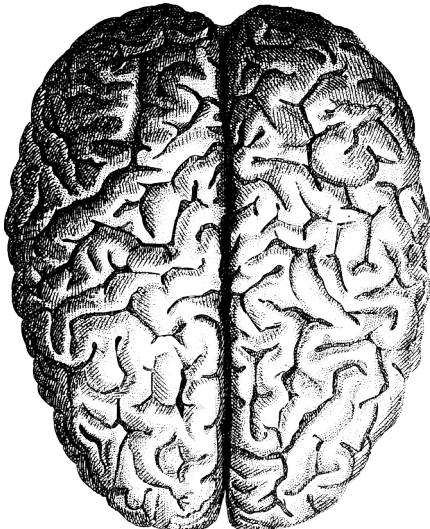
Question	Yes	No
15. Do you often act spontaneously and are you sometimes premature in drawing conclusions?		
16. Are you a daydreamer, are your night-time dreams close to reality and exciting?		
17. Are you interested in music, painting, dance and artistic expression?		
18. Do you lack a particular sense of time?		
19. Do you reach judgement more frequently based on your feelings than on the facts?		
20. Do you sometimes have the feeling that you had seen or experienced something before, such as in a different life?		
21. Do you often have certain intuitions and do you often follow your instincts?		
22. Are you a visual type of person? Are you able to recall places best through colours and shapes?		
23. Do you cry easily, are your feelings easily hurt?		
24. Are you romantic and drawn to beautiful things?		
25. Do you often think about the past?		
26. Do you easily learn by doing and directly observing?		
27. Do many people describe your desk as chaotic and untidy?		
28. Are you interested in psychology and holistic medicine?		

Evaluation

Count up how many of the test questions 1 – 14 that you answered “Yes” to. This score has to do with using your left brain hemisphere. Then count up how many of the questions 15 – 28 you responded “Yes” to. This score has to do with using your right brain hemisphere. If one brain hemisphere now appears to be strongly dominant (e.g. 8 points on the left side and 3 on the right), then this would indicate that you prefer that hemisphere. However, if the score is more of a tie (e.g. 8 points to 7 points), then if you have answered the questions correctly you would appear to be more balanced in your thinking and feeling.

Please draw a bar diagram from left/right, corresponding to your score:

14	13	12	11	10	9	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	9	10	11	12	13	14



left hemisphere
right hemisphere

Learning type test

What are my preferences for acquiring information?			practically everything (3)	a lot (2)	a little (1)	practically nothing (0)
h	h	If I listen to a lecture, as a rule I will retain ...				
h	s	If a lecture is supported by sketches or images, I will retain ...				
h	r	If a text appears on a television screen and the text is simultaneously read aloud by a speaker, I will retain ...				
h	d	If someone orally explains the sequence of a task to me and I can simultaneously perform that task, I will retain ...				
r	d	If I have read the user instructions for a device and then try it out, I will retain ...				
r	r	If I have read an abstract text, I will retain ...				
r	s	If the same text contains images, I will retain ...				
s	s	If I have seen images once, as a rule I will retain ...				
s	d	If manual tasks are demonstrated to me without words and I have attempted them once, I will retain ...				
d	d	Manual tasks (skills, operating devices) that I have mastered once, I will retain ...				

Evaluation

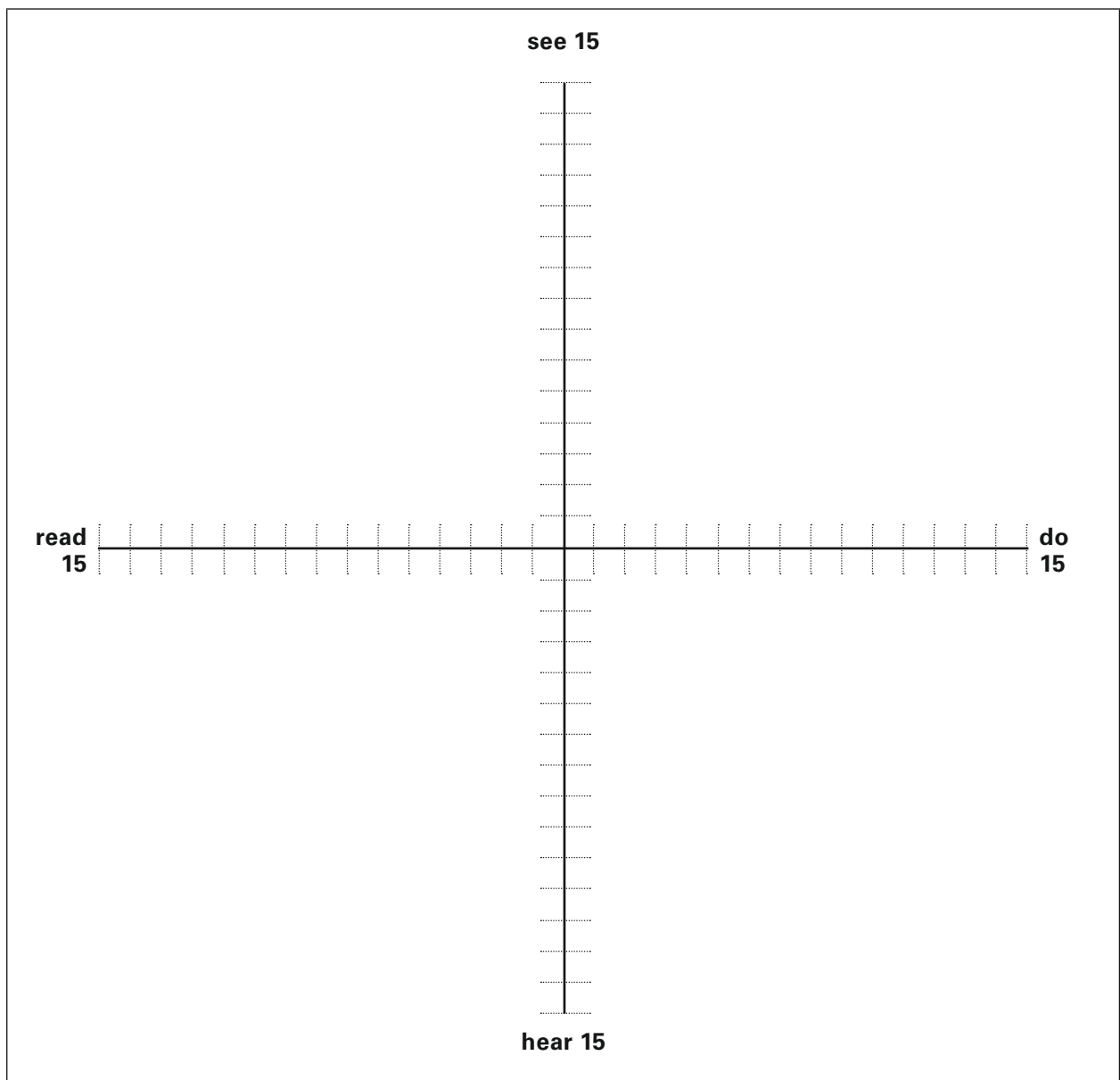
1. Transfer the scores you receive into the evaluation columns, example:

h	h	If I listen to a lecture, as a rule I will retain ...				
2	2			2		

↑ ↑

2. Add up the scores under the five letters hear and transfer the results to the graph below.

3. Do the same with the letters see, read and do.



Kolb test

Personal learning style

The following short questionnaire by David A. Kolb can shed light on your learning style. There are various forms in which experiences are prompted, made, perceived, interpreted and analysed. Each of us has a recurring pattern for these. For our own learning, it is helpful to recognise this pattern, to make use of the strengths of the patterns and possibly to apply neglected forms of learning to a greater extent. This is particularly helpful when taking on a new task.

Please complete the questionnaire on page 40 before you read the evaluation and interpretation. Your result will otherwise potentially be influenced by this and thus not as informative.

There are no correct or wrong answers or good or bad answers. If you approach this task spontaneously, without thinking too long about it or censoring yourself too much, you are most likely to get an outcome that will be informative to you.

The brief article which follows the exercise will describe what the outcome can mean for you personally.

The goal of this tool is to provide you with a rounded, more-complete profile of your own personality, with your strengths and weaknesses. These are standardised questionnaires, with no direct relationship with the challenges of the position you are seeking. Indirectly, however, it is possible to infer a number of conclusions from this exercise.

Measuring learning styles pursuant to the method of D. Kolb

You see a text with 9 lines and 4 cells. There are four words in each line.

Example from line 1: selective, exploring, engaged, practical

One of these four words is the best description of the way you learn best. That word is assigned the greatest number of points, and you then choose the second word that is next most typical of your learning style, etc.

You should always arrive at a total of 10 points per line (i.e. the sum of 4 points, 3 points, 2 points, and 1 point).

Example for line 1:

A1 selective B1 exploring C1 engaged D1 practical

Calculating your line-by-line score: Read each line through and assign a total of 10 points to each line.

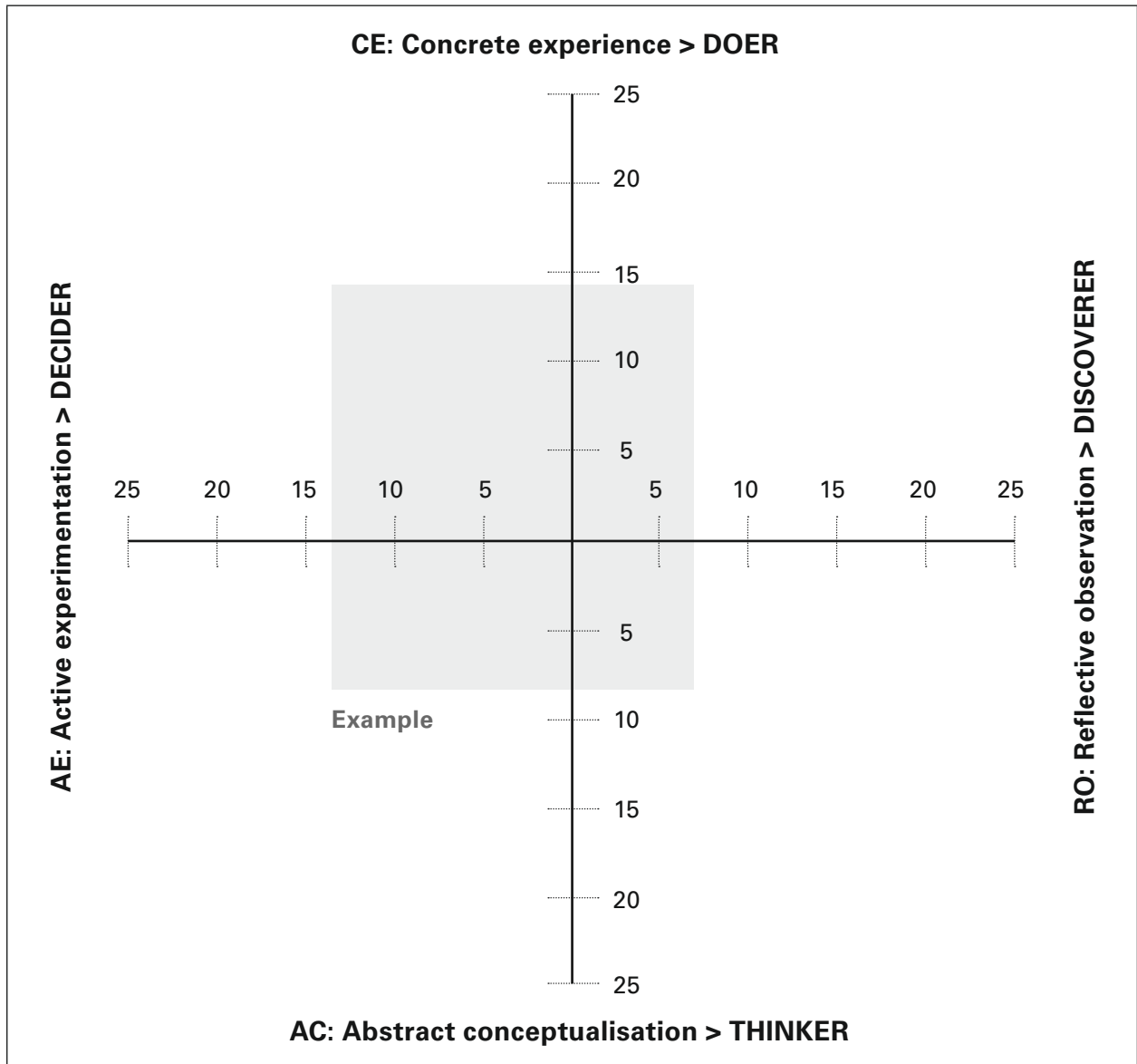
A1	<input type="text"/>	selective	B1	<input type="text"/>	exploring	C1	<input type="text"/>	engaged	D1	<input type="text"/>	practical
A2	<input type="text"/>	receptive	B2	<input type="text"/>	fact-based	C2	<input type="text"/>	analytical	D2	<input type="text"/>	impartial
A3	<input type="text"/>	feeling	B3	<input type="text"/>	observing	C3	<input type="text"/>	thinking	D3	<input type="text"/>	doing
A4	<input type="text"/>	accepting	B4	<input type="text"/>	venturesome	C4	<input type="text"/>	thinking through	D4	<input type="text"/>	aware
A5	<input type="text"/>	intuitive	B5	<input type="text"/>	productive	C5	<input type="text"/>	logical	D5	<input type="text"/>	questioning
A6	<input type="text"/>	abstract	B6	<input type="text"/>	contemplating	C6	<input type="text"/>	concrete	D6	<input type="text"/>	active
A7	<input type="text"/>	present-oriented	B7	<input type="text"/>	reflecting	C7	<input type="text"/>	future-oriented	D7	<input type="text"/>	pragmatic
A8	<input type="text"/>	experience	B8	<input type="text"/>	observation	C8	<input type="text"/>	conceptualisation	D8	<input type="text"/>	experimentation
A9	<input type="text"/>	intense	B9	<input type="text"/>	reserved	C9	<input type="text"/>	rational	D9	<input type="text"/>	responsible

Evaluating your personal learning style

Transfer your individual scores from page 44 into the boxes shown below (not all scores will be required). Total the columns up.

A2	<input type="text"/>	B1	<input type="text"/>	C2	<input type="text"/>	D1	<input type="text"/>
A3	<input type="text"/>	B3	<input type="text"/>	C3	<input type="text"/>	D3	<input type="text"/>
A4	<input type="text"/>	B6	<input type="text"/>	C4	<input type="text"/>	D6	<input type="text"/>
A5	<input type="text"/>	B7	<input type="text"/>	C5	<input type="text"/>	D7	<input type="text"/>
A7	<input type="text"/>	B8	<input type="text"/>	C8	<input type="text"/>	D8	<input type="text"/>
A8	<input type="text"/>	B9	<input type="text"/>	C9	<input type="text"/>	D9	<input type="text"/>
Total CE	<input type="text"/>	Total RO	<input type="text"/>	Total AC	<input type="text"/>	Total AE	<input type="text"/>

On the next page, draw your personal learning-style square on to the chart.



Learning styles as described by David Kolb

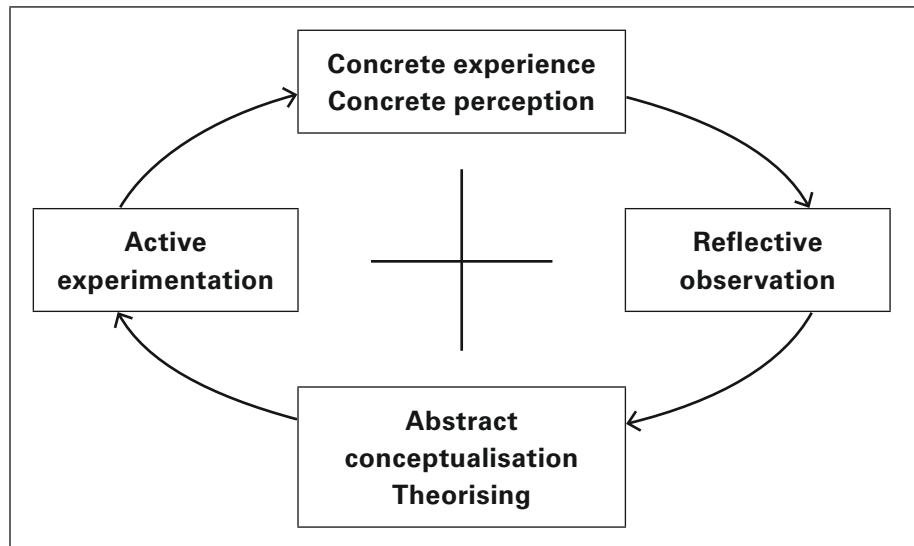
Successful executives are able to adjust to shifting requirements and to master them; in other words they have the ability to learn. What holds true for an individual adult likewise holds true for entire companies. Remaining successful over the long term in a rapidly changing environment requires individuals and companies to seek out new opportunities constantly and to learn from their successes and mistakes.

Although these are not new ideas, it is surprising that managers and organisations pay so little heed to the ability to learn. A type of fatalism develops with respect to learning: Either you can do it or you can't.

David A. Kolb (1974) has researched this question and reached this conclusion: If managers and staff understand how human beings and organisations learn, it is easier for them to improve their own ability to learn as well as the ability of the organisation to learn. His model furnishes us with aids in this regard.

Model of experiential learning

In his model, Kolb describes a holistic cycle of learning: Experiences are incorporated into concepts, which, in turn, serve as guidelines for concrete action. A complete learning cycle moves through the four fields shown below:



Holistic learning cycle

A concrete experience is thus the starting point of further observations and reflections. They are processed and turned into a "theory", enabling new conclusions to be drawn. These conclusions and hypotheses then serve as a "guideline" for action (active experimentation) in order to gain new empirical knowledge.

Brief description of specific learning abilities

Tensions often arise in learning groups at seminars. Whereas some people want more theory in order to “learn a lot of material”, others would prefer practical examples and exercises in order to “really learn something”. Trainers cannot suit everyone by using the same method. Through his empirical research, Kolb has discovered that people access learning by different pathways corresponding to their particular strengths.

There are different learning skills required for a single overall learning cycle:

- **Skill in concrete experience (CE)**
This means to be open and unprejudiced about new experiences.
- **Skill in reflective observation (RO)**
This is the particular strength of reflecting on knowledge and experiences and looking at them from different angles.
- **Skill in abstract conceptualisation (AC)**
Some people have the gift of generalising their observations and neatly integrating them into theories.
- **Skill in active experimentation (AE)**
Finally, the ability to use concepts and theories for decisions and problem solving is a further talent.

It would be ideal to have a high degree of all four skill types. To what extent is this possible? Learning apparently requires us to have conflicting skills: On the one hand, it requires us to be active and reflective, on the other, it also demands that we be directly impacted and yet preserve analytical distance.

As a learner, one must always choose the skill one needs to deploy in a specific situation. Learning will be effective where it proceeds through the entire cycle—in other words, if sufficient reflection is given to the specific experience, if the results of that reflection are used for conceptualisation, if new conclusions for action are drawn from that concept and if these are then tried out in practice.

Individual learning styles

Based on genetic factors, early experience and the specific challenge present, most people develop a learning style which focuses on several learning skills and neglects others. Depending on which of the four skills referenced here is dominant, one can identify four learning styles:

- **Dominance: Concrete experience (CE) > Doer**
This is an approach to learning that relies on direct, unprejudiced perception and sensitivity. Concepts and theories tend to be regarded as useless. For this reason, people with this learning style often seek an exchange of views with their colleagues. One is open to new information and experiences and learns best in the “here and now”.
- **Dominance: Reflective observation (RO) > Discoverer**
This approach to learning comprises careful observation and non-judgmental gathering of empirical data. In this context, learning means, above all, the impartial, detached evaluation of experiences and information.
- **Dominance: Abstract conceptualisation (AC) > Thinker**
This is an approach to learning which is based on logical, analytical thought and rational evaluation. These learners prefer situations where the learning proceeds systematically and where general hypotheses are demonstrated using logical theoretical models.
- **Dominance: Active experimentation (AE) > Decider**
“Learning by doing” is the characteristic approach for this style these learners seek to try things out in a specific way in order to develop new theories of action from the experience. These learners prefer learning in group projects, other projects, homework. Lectures are usually not popular with this group.

Learning style types

Kolb has developed a simple tool to measure individual learning style: LSI – Learning Style Inventory.

The inventory measures the four dimensions

CE: Concrete experience > Doer

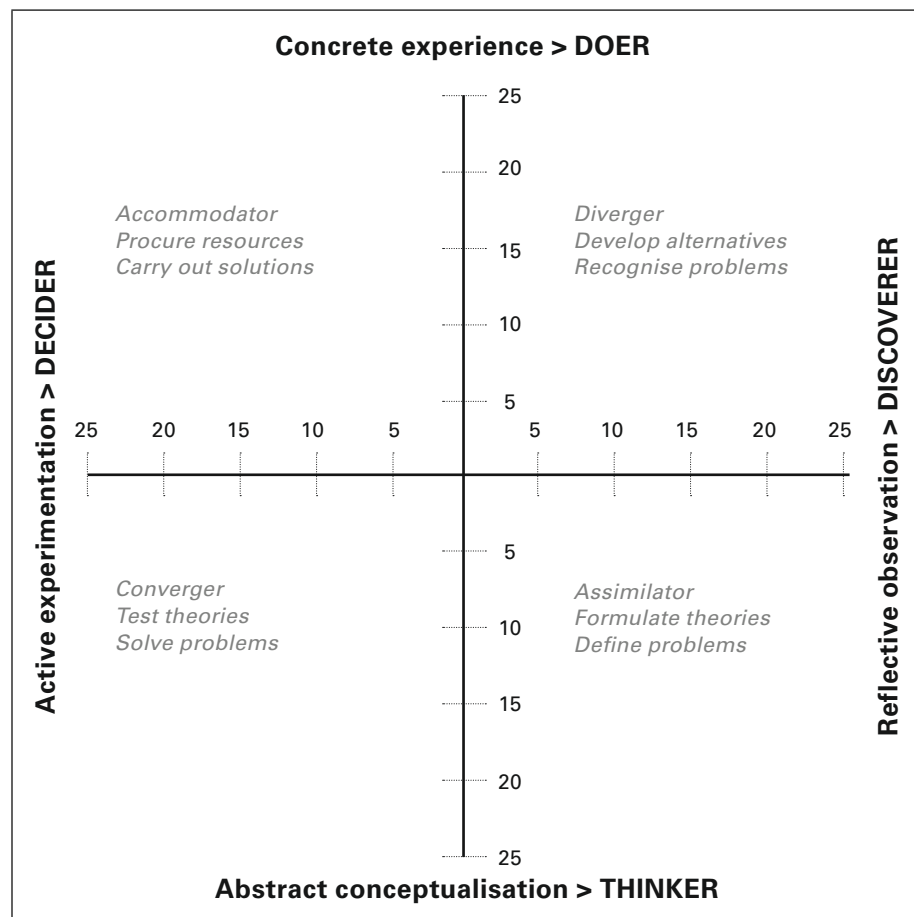
RO: Reflective observation > Discoverer

AC: Abstract conceptualisation > Thinker

AE: Active experimentation > Decider

This tool is attached to page 40.

It is unlikely that your learning style precisely corresponds to one particular aspect of the learning process. Rather, each person's learning style is a combination of the four elements of the learning process. The evaluation axis is designed accordingly. The four quadrants, labelled "Accommodator", "Diverger", "Converger" and "Assimilator", correspond to the four prevailing learning styles.



The closer you are to the point at which the axes intersect (value = 0), the more balanced your learning style is. If, by contrast, you are close to one of the four corners, what this shows is that you rely heavily on a particular learning style.

3.12 Literature



Buzan, Tony

Make the Most of Your Mind (A Fireside book)

Touchstone 1984

ISBN-10: 0-671-49519-4

Dennison, Paul E. / Dennison, Gail E.

Brain Gym: Simple Activities for Whole Brain Learning

Edu-Kinesthetics, Inc. 1992

ISBN-10: 0-942-14305-1