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Theoretische Aufgabenstellung: Eric Haneder

(Lernen,) Lerntypen, Lernstile, Lernpräferenzen und selbstreguliertes Lernen

Lernen

Everyone has to learn, both actively and passively. Whether at school or in professional life, further education is part of the essence of man. The term "learning" usually means the acquisition of knowledge, the development of skills or the practice of motor processes. However, "learning" also refers to activities that are carried out with the aim of changing internal conditions.

(vgl. Selbstreguliertes Lernen in der dualen Ausbildung - Lerntypen und Bedingungen, Johannes Rosendahl, 2010)

Physiological structures of learning

Regardless of the theoretical approach to learning, it is true that learning is linked to the ability to modify the central nervous system (CNS) (Birbaumer & Schmidt 1996, 2006). The central nervous system consists of the brain and spinal cord, whose impulse-transmitting cells (neurons) receive and process signals from the peripheral nervous system and generate and transmit signals for the regulation of organs such as muscles.

Despite the large amount of signals that are constantly received by the sense organs from the environment and transmitted to the CNS, the number of connections between the peripheral nervous system and the CNS is relatively small. Most of the estimated 100 billion neurons (Goldstein 1997, S. 11) serve to process information (pattern recognition, linking), they receive their input from cortical neurons and deliver their output to other cortical neurons. *(vgl. Selbstreguliertes Lernen in der dualen Ausbildung - Lerntypen und Bedingungen, Johannes Rosendahl, 2010, S.22)*

There are many people who have tried to classify different learning preferences and learning types. I will discuss these classifications in more detail below.

Learning type classification according to Vester

In the book "Denken, Lernen, Vergessen. Was geht in unserem Kopf vor, wie lernt das Gehirn und wann lässt es uns im Stich?" (1975, Stuttgart), Frederick Vester defined four types of learning. However, his book was interpreted differently, so that different versions of his classification can be found. At least on the fact that there is an auditory, a visual and a haptic learning type, there is agreement. Though there are some people who think that the fourth learning type after Frederik Vester is the communicative learning type and others think that it is an intellectual learning type.

One also comes across terms like "cognitive learning type"   "intellectual learning type", or the "kinesthetic learning type"   "haptic learning type.

Evidence for a classification according to Vester with a "communicative learning type"

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https://www.teko.ch/die-vier-lerntypen-und-ihre-besonderheiten;
https://www.mystipendium.de/studium/lerntypen;
https://karrierebibel.de/lerntypentest/#Die-vier-Lerntypen-angelehnt-an-Frederic-
Vester;
https://learnsolution.de/die-vier-lerntypen-nach-frederic-vester/;
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Evidence for a classification to Vester with an "intellectual learning type""

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http://www.rechtschreibwerkstatt-konzept.de/wp-
content/uploads/2015/02/Looss_Lerntypen.pdf;
https://wb-web.de/wissen/lehren-lernen/lernstile-und-lerntypen.html;
https://smarter-learning.de/lerntypen/klassische-lerntypen-nach-vester/;
https://wissenschafts-thurm.de/lerntypen/;
"Erforschung der Lerntypen und -strategien am Beispiel einer Handelsschulklasse",
Petra Hochleitner, 2016
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I will be analyzing this classification according to Vester:

1. optical/visual → Learning through seeing and observing

2. auditory/acoustically → Learning through listening and speaking

3. haptisch → Learning through action (touching and feeling)

4. cognitive → Learning through recognition/intellect

Auditory learning type

The auditory learning type learns while using his hearing. He/She has no problem listening to someone over long periods of time. The auditive type prefers auditioned learning content and learns better if he/she reads the text aloud himself/herself.

Visual learning type

This learning type learns the best, when he takes up the learning content through his eyes. Reading texts will lead to great learning achievements. This gets a better unterstanding of facts through looking at pictures.

Haptic learning type

The haptic learning type achieves the best learning succes if he cant feel the information he has to learn. "Learning by Doing" describes this lerning method pretty good. He prefers to be actively integrated into the learning process. Practical demonstrations are helpful too.

Cognitive/Intellectual learning type

This learning type understands and saves information the best, by thinking about and critically examining the information. The perception channel not important for taking up learning content.

(vgl."https://smarter-learning.de/lerntypen/klassische-lerntypen-nach-vester/";   letzter   Zugriff: 14.01.2020)

Connections

Most of the time, it is not possible to assign someone a certain learning type, as there mix-types of learning. There are some people who learn faster by reading through text and writing it down afterwards (visual & haptic), and others are better of learning by reading and reciting out lout (auditory & haptic).

So if you want to learn effectively, you should try to appeal to more than one sense, to find a combination that fits your style.

How are different types of learning formed?

It would be a lot easier, if everybody could learn the same way. In reality, there a many people with different learning types, this is due to cnahges in personal characteristics, habits and previous experiences.

So how can you find out which learning type suits you best?

On the Internet you can find many so-called "learning type tests". In these tests, u have to answer a few simple questions, that depict typical life situations. Here are two hyperlinks, which lead to easy tests: * http://arbeitsblaetter.stangl-taller.at/TEST/HALB/Test.shtml * http://www.philognosie.net/index.php/tests/testsview/150/

After completing one of these tests, you will receive a recommendation as to which type of learner is more suitable for you.

It should be noted that different tests can also lead to different recommendations. This is due to the fact that the tests have different focuses and are more or less comprehensive.

If you do not want to take such tests, you can just look up different well-approved learning methods and try them yourself. Check how good you can remember something while using all of the different learning methods either alone or combined.

(vgl. "Erforschung der Lerntypen und -strategien am Beispiel einer Handelsschulklasse", Petra Hochleitner, 2016)

Learning preferences according to Dunn

Dunn and Price (1989) defined learning style as a typical way of learning that is influenced by different elements of the environment. This regards:

- physical stimuli (light, sound, temperature, design)

- social stimuli (pairs, peers, adults, groups)

- stimuli of learning material (auditiv, visuell, taktil, kinästhetisch)

- emotional stimuli (responsibility, persistence, motivation, disciplin)

These factors are measured by the "Learning Styles Inventory". However, this model takes little account of the actual cognitive processes that play a role in learning.

(vgl. "Lernorientierungen, Lernstile, Lerntypen und kognitive Stile", Ulrike Creß, in "Handbuch Lernstrategien" von Heinz Mandl & Helmut Felix Friedrich, S.373)
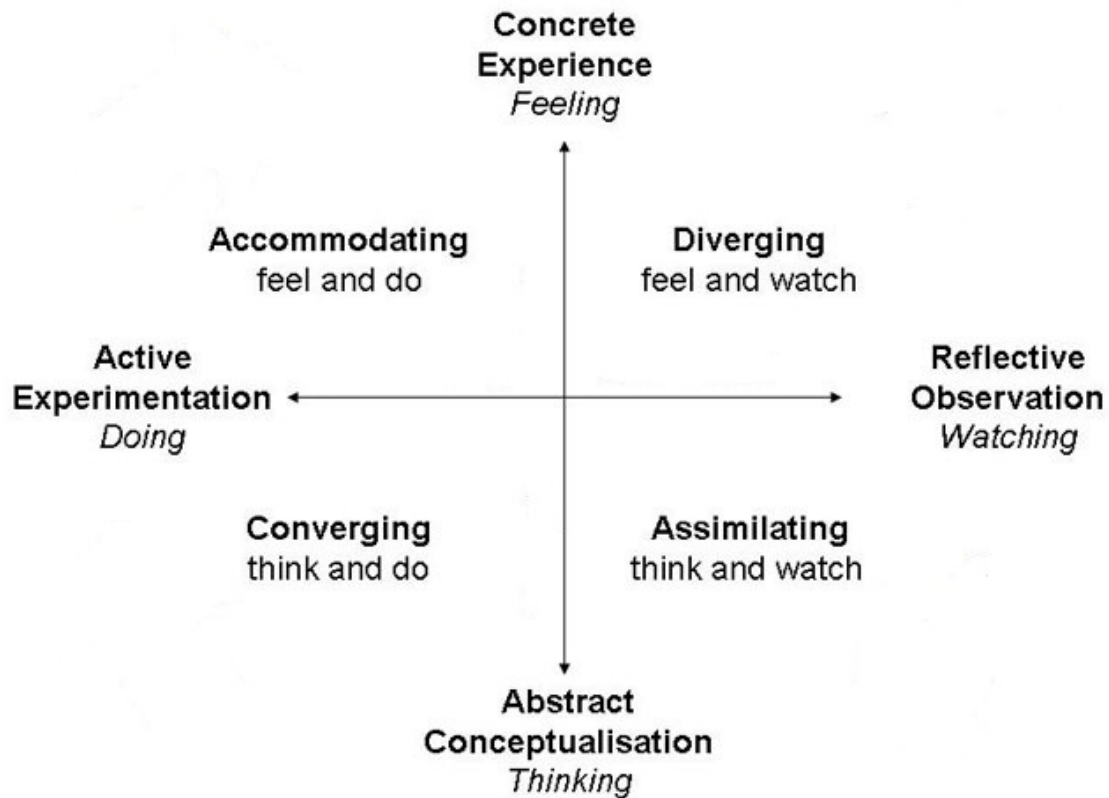
Learning styles according to Pask

Around 1972, Pask and Scott identified two opposing learning strategies used in problem-solving tasks where people had to search for information independently.They described the consistend usage of these strategies as a learning style. The holistic strategy means that learners always keep the big picture in mind and only turn to detailed questions in a second step. If this strategy is applied consistently, Pask speaks of the learning style of comprehension learning. On the other hand, learners with a serial strategy work their way step by step through the learning material and primarily turn to individual questions. If this strategy is used consistently, Park speaks of operation learning. Both strategies can lead to the same success. In their extreme form, however, both have a negative effect on performance, which is why Pask assigns both learning styles to corresponding learning pathologies. *Globetrotting* refers to the learning pathology of extreme comprehension learning, in which learners make inadmissible generalizations without the corresponding individual analysis. *Improvidence* describes the extreme form of operation learning, in which people lose themselves in details without being able to connect them to a big picture. Since the differences between holistic and serial approaches affect not only learning behaviour but the entire way in which information is sought and processed, they are often interpreted as cognitive styles.

(vgl."Lernorientierungen, Lernstile, Lerntypen und kognitive Stile", Ulrike Creß, in "Handbuch Lernstrategien" von Heinz Mandl & Helmut Felix Friedrich, S.369)

Learning styles according to Kolb

In 1984 David Kolb took a completely different approach to classifying learning types. According to Kolb, the learning process is based on two orthogonal bipolar dimensions. The first dimension depicts how people perceive and collect information. Persons can perceive via the senses through practical experience or through abstract comprehension. The second dimension represents the way information is processed. It ranges from active trying to mental observation. (orthogonal → two straight lines are called orthogonal if they enclose a 90 degree angle) The following figure shows the dimensions:

Concrete
Experience
Feeling

Accommodating
feel and do

Diverging
feel and watch

Active
Experimentation
Doing

Reflective
Observation
Watching

Converging
think and do

Assimilating
think and watch

Abstract
Conceptualisation
Thinking

Quelle (https://selfdirectedlearning.webnode.es/learning-styles-by-kolb/; letzter Zugriff 28.01.2020)

Kolb presents four learning styles defined by the four quadrants that result from these orthogonal dimensions.

Convergers explore their environment through active probing and process information in an abstract way. They are therefore interested in testing their theories and solving problems deductively.

Divergers combine mental observation with practical experience. This often leads them to creative solutions.

Assimilators connect abstract comprehension with mental observation. They are therefore mainly interested in developing abstract theories and defining problems, less in solving concrete problems.

Accomodators combine active experimentation with concrete experience. They prefer casual learning directly from the situation. The learning style of a person is measured by Kolbs' Learning Style Inventory (KLSI).

Kolb's approach is by far the most frequently cited of the approaches for recording learning styles.

(vgl. "Lernorientierungen, Lernstile, Lerntypen und kognitive Stile", Ulrike Creß, in "Handbuch Lernstrategien" von Heinz Mandl & Helmut Felix Friedrich, S.371-372)

Selbstreguliertes Lernen

The concept of self-regulated learning is neither a precisely scientifically defined term nor a uniformly used term in everyday language. Furthermore, the terms self-regulated learning, self-directed learning, learner control can hardly be defined clearly.

Niegemann and Hofer (1997) or Büser (2003) define that in self-directed learning, in contrast to self-directed or self-regulated learning, the learning goal is determined by the person himself. Other authors, on the other hand, see the decision on learning goals explicitly as a component of self-directed or self-regulated learning (Arnold & Gomez-Tutor 2006; Dehnbostel 2003; Lang & Pätzold 2006; Neber 1978; Schreiber 1998, S. 45).

(vgl. Selbstreguliertes Lernen in der dualen Ausbildung - Lerntypen und Bedingungen, Johannes Rosendahl, 2010)

Beim selbstregulierten Lernen spielt die eigene Motivation eine große Rolle. Hierbei kann die Bildung von Zielintentionen(Lernzielen) helfen. (Die Wahl des Lernziels muss aber nicht zwingend selbstbestimmt erfolgen.) In diesen Zielintentionen kommen persönliche Standards und Referenzleistungen zum Ausdruck.

Ausgehend von diesem Ziel werden Handlungen durchgeführt, ihre Ausführung wird überwacht und ihr Ergebnis mit dem Ziel verglichen. Als Reaktion auf das Vergleichsergebnis wird das Handeln entweder angepasst oder eingestellt. Die eigentliche Selbstregulation umfasst die interagierenden Subprozesse Selbstbeobachtung, Bewertungsprozesse und Selbstreaktion (Bandura 1986, S. 337), die in Ansätzen zum selbstregulierten Lernen häufig gemeinsam mit Planungsaktivitäten unter dem Begriff der Metakognition zusammengefasst werden (Weinstein & Mayer 1986, Pintrich & De Groot 1990; Pintrich, Smith, Garcia & McKeachie 1993). Während der Selbstbeobachtung registriert der Lernende seine Leistung im Hinblick auf verschiedene Leisungsdimensionen wie Qualität, Originalität, Quantität und Moralität sowie Richtigkeit und Genauigkeit.

(S. 20) Der Begriff Selbstregulation betont, dass eine Person ihr Handeln in wesentlichem Ausmaß beeinflusst (Weinert 1982). Dies schließt allerding nicht aus, dass eine zwischenzeitliche Lernkontrolle (Vergleich Soll/Ist) durch den Asubilder/Lehrer erolgen kann.