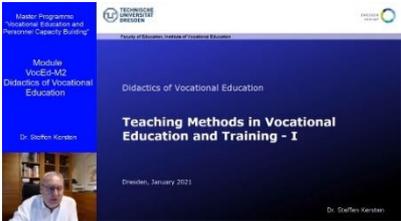
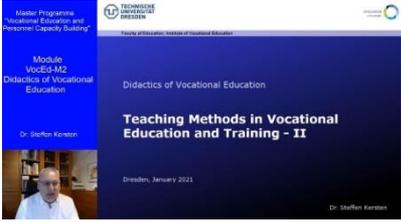


Didactics of Vocational Education

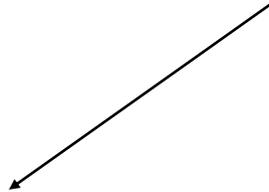
Didactic functions - Orientation -

Dresden, April 2022

Prof. Dr. Steffen Kersten

Video-Lecture	Relevant sections in the study material	Exercises	Relevant exam tasks
 <p>Cognitive teaching methods (66 min)</p>	<p>Chapter 5 p. 51 - 57</p>	<ul style="list-style-type: none"> - Develop an own example for one path of cognition! 	<ul style="list-style-type: none"> - Explicate the term “Teaching method”! - Draw up a lesson plan using a path of cognition! - Which factors do you have to consider, when you choose a path of cognition for your lesson?
 <p>Logical basics of cognitive learning (56 min)</p>		<ul style="list-style-type: none"> - Develop your own example of evidence or falsification! 	
 <p>Didactic functions -orientation- (70 min)</p>	<p>Chapter 5 p. 42 - 47</p>	<ul style="list-style-type: none"> - Formulate 3 cognitive learning goals at different levels of the learning goal taxonomy according to Benjamin BLOOM! 	<ul style="list-style-type: none"> - Point out the structuring of vocational lessons by didactic functions! - Explain the relationship between stages of learning acts, didactic intentions and didactic functions! - Describe ways to prepare the learner cognitively, emotionally and motorically for the learning activities! - Why is the holistic orientation so important in vocational training!

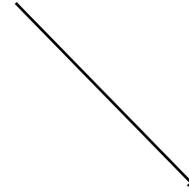
Didactic-methodical design of vocational education



external side

forms of organisation

- (1) of vocational lessons/lectures
- (2) of vocational learning
- (3) of vocational teaching



internal side

internal structuring

- (1) didactic functions
- (2) methodical procedure
- (3) complexe teaching methods

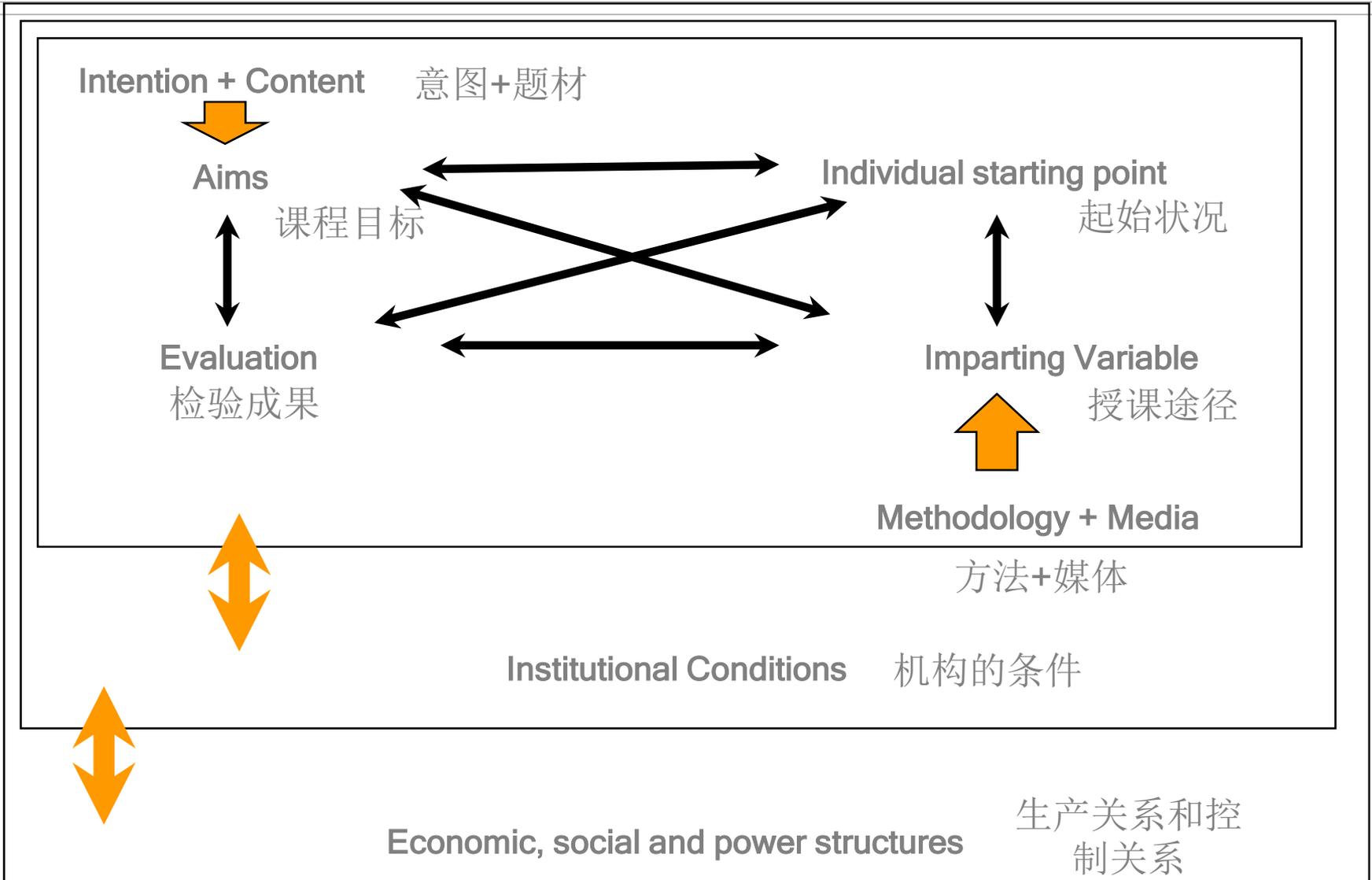
Didactic functions

Group of Elements	Didactic Function	Didactic Intention	Stages of Learning Acts
1.	Starting with practical examples Getting in the mood of motivation Orientation for action Preparation decision for action	Getting the learners ready for the learning act	Orientation
2.	Working on new contents/learning acts	Opening up the contents for the learners	Performing of tasks
3.	Working on known contents/learning acts consolidation of formerly acquired knowledge/skills	Improving the availability of learning results for the learners	Performing of tasks
4.	Evaluation of results/outcomes Assessment of learner performance	Feedback on the performance level for learners and teacher	Evaluation of results/outcomes



教学功能

要素组	教学功能的名称	教学目的	各教学学习阶段的名称
1.	引入、 在情绪上有所准备、 行动导向、 再次激发激活、 行为抉择、 目标导向	学生了解教学学习活动	定向
2.	初次领悟掌握	向学生介绍解释 教学资料	行动
3.	巩固、 加深、 加强结合运用	学生更好地掌握运用学习成果	行动
4.	检测、 评估	了解学生的学习成果 了解教师的教学成果	检验

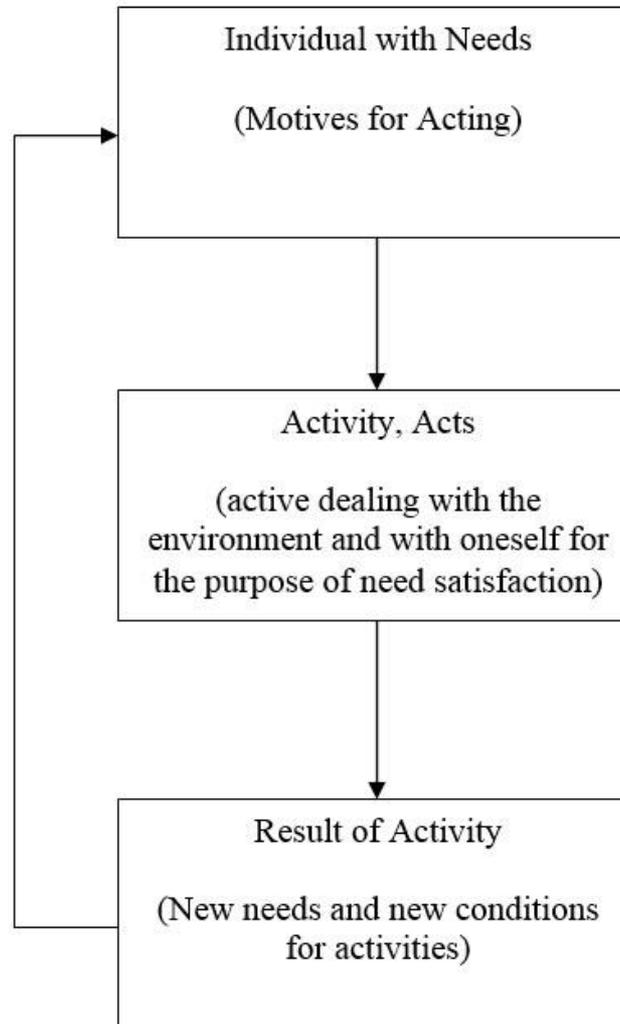


Preparation of the learners for the learning acts

- Reactivation of required prior knowledge
 - Motivation of the learners for the learning acts 
 - Definition of the learning objectives 
 - Cognitive entry into the subject of learning acts
 - Emotional attunement to the learning acts
 - Psycho-motor preparation of the learning acts
-  Holistic learning

Motivation

- Intrinsic motivation (interest or enjoyment in the task itself)
- Extrinsic motivation (influences outside of the individual)

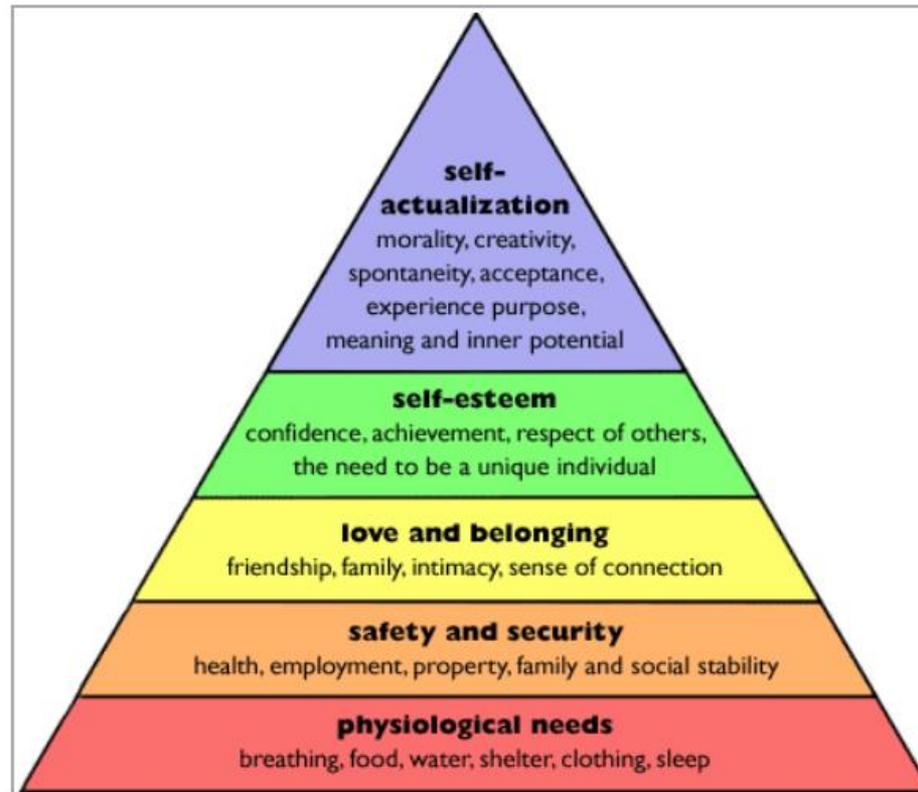


Source: Hortsch, Hanno: Didactics of Vocational Education. Dresden 2012, p.13

Motivation theory of needs (Maslow)

A. H. Maslow (1943)

Originally Published in Psychological Review, 50, 370-396.

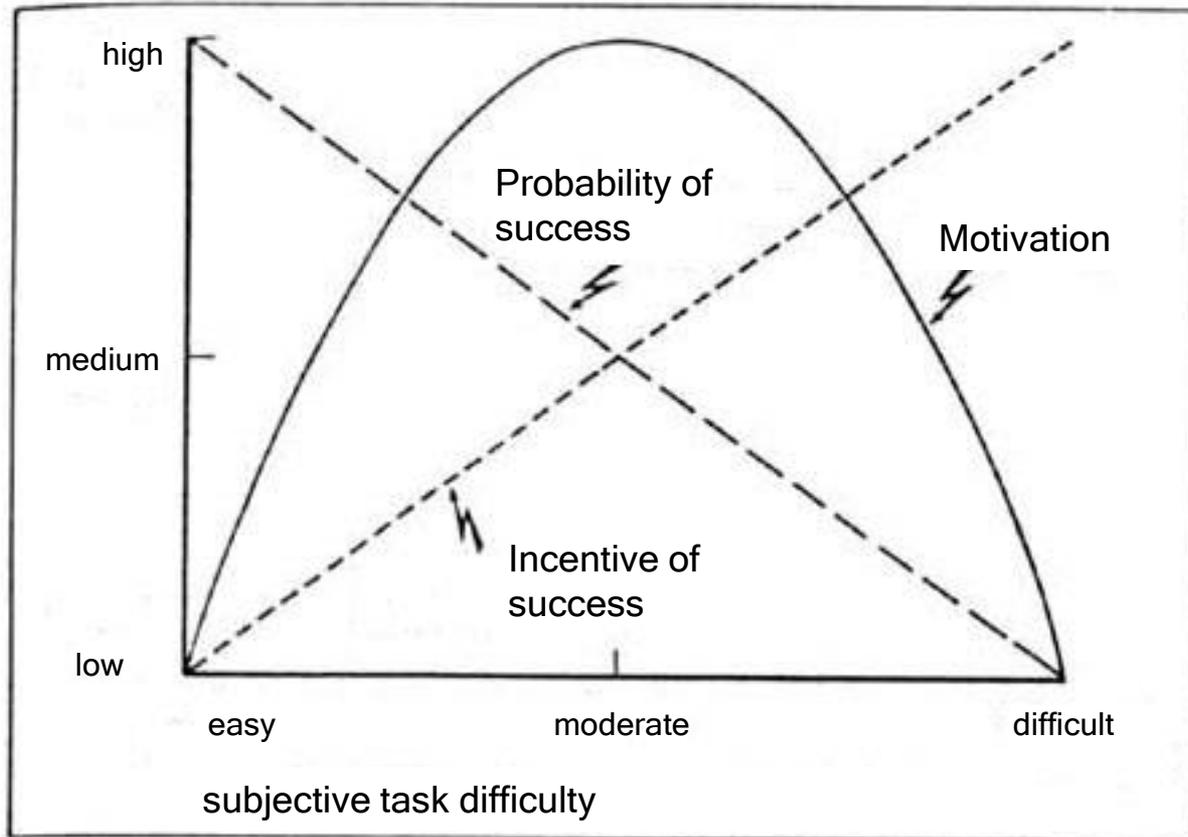


Two-factor theory of motivation (Herzberg)



Source: http://bilingualonline.net/contents/Turabo/MANA501/mana501/3_week/3_1_4.htm

Herzberg, Frederick: Work and the Nature of Man. Cleveland: World Publishing. 1966



Curve of achievement motivation in risk-choice model (modified from Atkinson in 1957, p.71)

Attribution theory assumes that people attribute their successes or failures special causes.

These causes can be classified as follows:

internal fixed attribution

→ e.g. talent, heredity

internal variable attribution

→ e.g. effort, learning strategies

external fixed attribution

→ high performance requirements
of the educational institution

external variable attribution

→ Good or bad luck



归因理论指人们将他们的成功或失败归因于特殊的原因的理论。

其原因分类如下：

内部的、稳定的归因

→ 例如：天赋、才能、遗传的特质

内部的、变量的归因

→ 例如：努力程度、学习策略方法

外部的、稳定的归因

→ 教育机构教学水平的高低

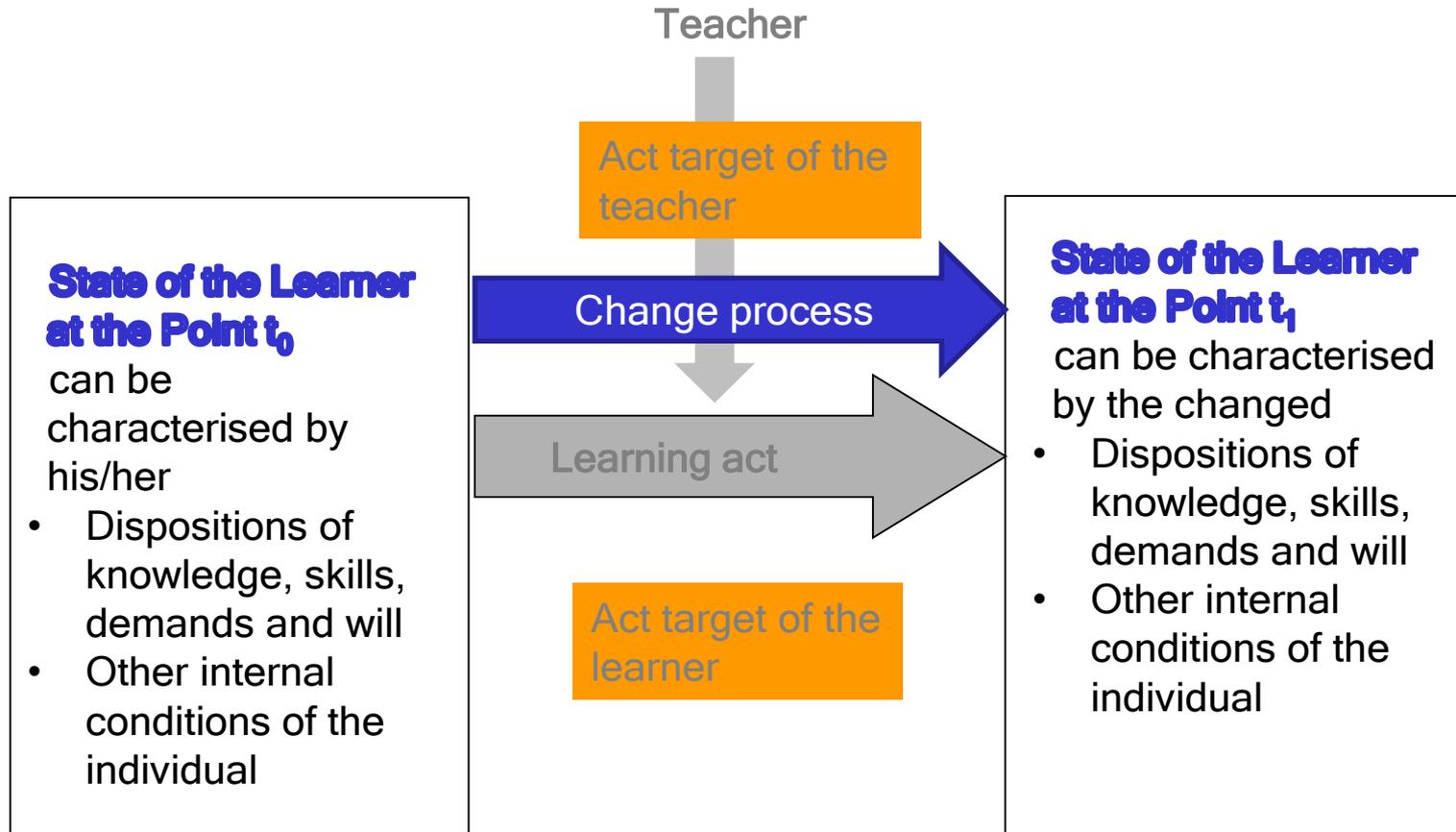
外部的、变量的归因

→ 幸运 或者 霉运

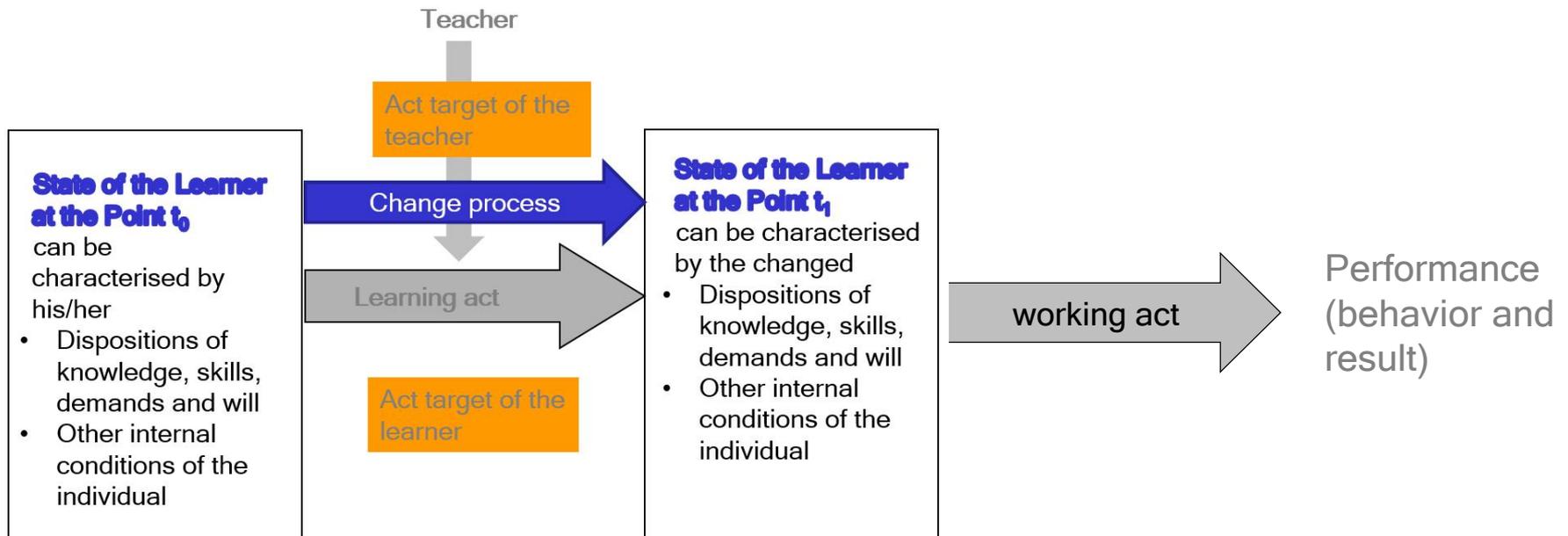


1. Indication of a desired learning outcomes in the form of personality dispositions.
个人对于想要取得的预期成果的阐述
2. Statement about the planned in studying observable behavior change in students.
对学生在学习中能够达到的并且可看到的行为变化进行阐述

Target dimensions in the lesson



Functionalization of individual personality dispositions in the work process



Matters of acquisition

norms, standards
orders ...
rules, methods,
algorithms,
principles

terms, statements
theories, questions

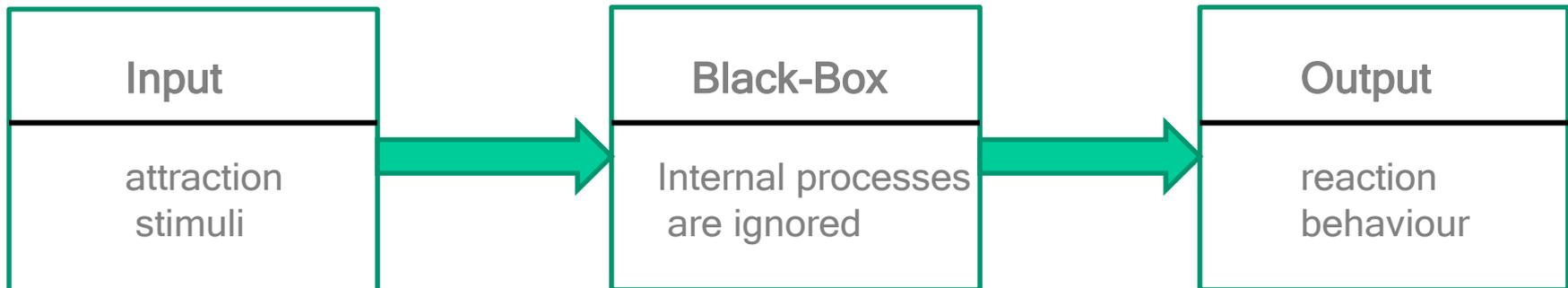
Acts

working
acts

Observable
characteristics

behaviour
performance

Behaviourism (WATSON, SKINNER)



0 Matters of acquisition	1 Manner of acquisition	2 Personality traits	3 Dispositions-function	4 Aim of acquisition	5 Acts	6 Observable characteristics
<p>norms, standards orders ...</p> <p>rules, methods, algorithms, principles</p> <p>terms, statements theories, questions</p>	<p>as development-guided act of acquisition of the subject</p>	<p>needs</p> <p>interests</p> <p>attitudes</p> <p>convictions</p> <p>abilities</p> <p>skills</p> <p>knowledge</p>	<p>knowledge</p> <p>volitional dispositions</p> <p>skills</p>	<p>act power</p>	<p>workig acts</p>	<p>behaviour performance</p>
<p>idealistic matters which exist outside of the learning subject as societal experience and knowledge</p>		<p>didactic target areas</p>	<p>requirements on the professionals as demands of professional activities</p>			

+

Matters of acquisition

descriptive matters of acquisition

- terms
- statements
- theories
- hypotheses
- ...

regulative matters of acquisition

- rules
- methods
- algorithms
- principles
- ...

normative matters of acquisition

- norms/standards
- fiats/commandments
- order/.../.../...
- ...

Personality features (PF)

- knowledge
- insights
- skills
- abilities
- attitudes/mindset
- convictions/opinions
- attitudes
- ...

Qualification

as a disposition of personality features oriented/aimed at professional/vocational activities

Functions of personality features in activities

Knowledge

- informative pre-condition for professional/vocational act

Skill

- subjective possibility for professional/vocational act

Volitional Disposition

- subjective necessity for professional/vocational act

Forms of behaviour

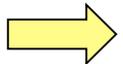
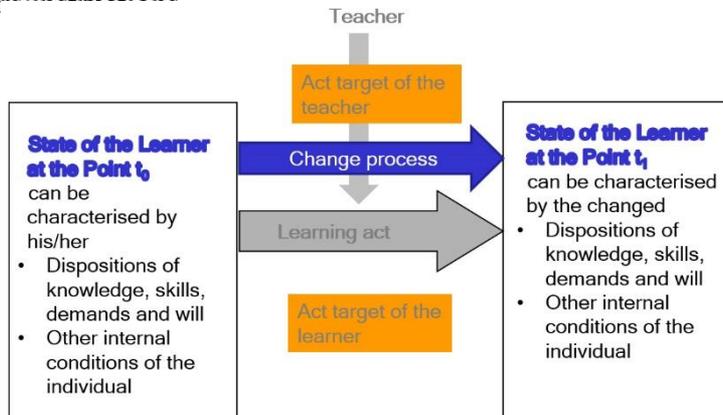
Output

as result of

behaviour/ conduct

on the basis of existing abilities for vocational/professional "Handlungskompetenz"

Multifunctional key abilities reconstruct and construct functions and PF in acts



要掌握的内容

人格特质

描述型:

定义、
见解、
理论、
假设等

规则型:

规则、方法
算法、原则等

规范型:

规范、
戒律、
指令等

- 知识
- 判断力
- 技能
- 能力
- 自制力
- 信念
- 态度立场
- ...

资格能力

通过人格特质
表现出来的职
业素养、职业
行为能力

塑造和重塑个性在职业中的作用和功能

个性在职业中的作用和功能

表现形式

知识

- 是完成职业行为所需的信息的前提条件

能力

- 是完成职业行为的主观可能条件

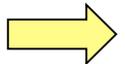
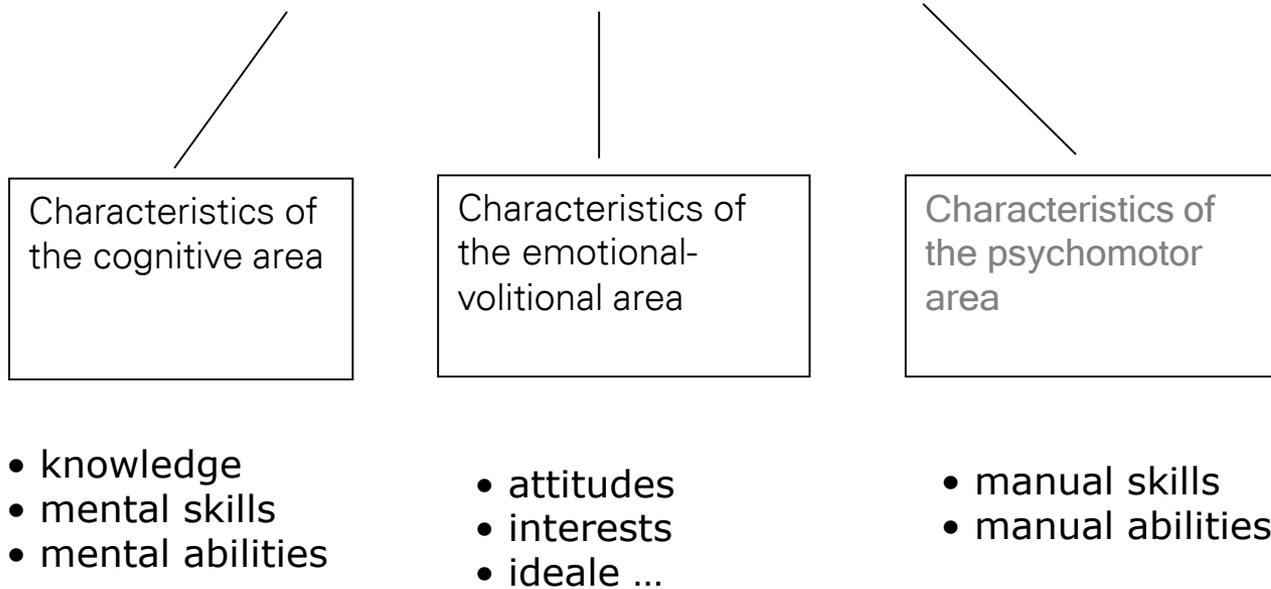
意愿

- 是完成职业行为的主观必要条件

成绩、绩效是
行为的最终结
果

以现有的
职业行为能力
为基础

Characteristics of personality



个性特征

认知领域的 特征

- 知识
- 才智
- 动脑技巧

情感-意愿领域的 特征

- 态度
- 兴趣
- 理想 等

精神运动学领域的 特征

- 动手技巧
- 动手能力

DAHRENDORF (1956)



functional
extrafunctional

Qualifications

KERN; SCHUMANN
(1970)



process-bound
process-independent

Qualifications

MERTENS
(1974)



Key-Qualifications

„ Knowledge, abilities and skills, which provide immediate and not limited to certain terms, disparate practical activities, but rather the ability for a large number of positions and functions as alternative options at the same time, and the ability to deal with a sequence of (usually unforeseen) changes in requirements in the course of life.“

(Mertens, 1974, S. 40)

Basic qualifications

facilitate the vertical transfer of skills and knowledge to different contexts and uses

- logical thinking
- constructive thinking
- creative thinking

Transversal knowledge elements

components of knowledge and qualifications which form the elements of a shared knowledge basis between different contexts

- knowledge of measurement technology
- employment protection
- machine maintenance

Horizontal qualifications

enhance the ability to process information to broaden the knowledge bases and to facilitate the transfer of knowledge between different knowledge domains

- Informed about information
- Processing information

Vintage-Factors

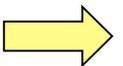
referred to new knowledge and abilities needed to deal with qualification gaps and changes in the requirements for skills and knowledge over time

Berufliche Handlungskompetenz, „is the ability and willingness of people to act in professional situations properly and professionally, personally thought out and in social responsibility as well as his possibilities for action continuously develop“. (Bader 1989)

Berufliche Handlungskompetenz, „ is the ability to recognize own responsibility in relation to professional actions and to use the own qualification in this situations“. (Hortsch 2006)

Components of „beruflicher Handlungskompetenz“

- the factual component
- the methodical component
- the social component



职业行为能力 是指“个人所具备的、能在工作场合中理性思考后作出专业的、符合实际情况的并对社会负责的行为的能力，并能持续地完善这种行为能力”。

(Bader 1989)

职业行为能力 是指“个人所具备的、能熟练运用相关职业行为并将职业资格发挥效能的能力”。

(Hortsch 2006)

职业行为能力的组成要素:

专业知识 为开展职业行为提供了必要的信息性条件

方法 用于实施职业行为。

社交 促进职业行为中的各种沟通和交流，创建各种社会关系网。

Competence as a personality dimension, "which comprehensively sentient on, thinking, willing and acting individuals during their lifelong learning and development processes relates " (Tippelt/Edelmann 2004 with reference to Erpenbeck/Heyse 1999)

Factual component

domain-specific knowledge, skills, professional judgment to deal with the working and living processes

Methodically/instrumental component

Culture techniques, use of information technologies, problem-solving methods

Personale component

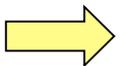
Self-confidence, identity, self-management, own reflectivity

Social-communicative component

Communication skills, teamwork

Basic knowledge

Basic knowledge in natural Sciences, social Sciences and ethics



能力是个性的组成部分 ”是指在某人一生的学习过程和成长过程中所体现出来的感知力、思考力、行动力和主观意愿的总和“。

(Tippelt/Edelmann 2004 Erpenbeck/Heyse 1999)

组成要素:

专业方面

为确保工作和日常生活能顺利进行而所需的某一特定领域的专业知识、技能和判断能力

方式/方法方面

文化性技巧、信息技术和各种解决问题的方法

个人方面

自我意识、自我认同、自我管理、自省能力

社交方面

交际能力、团队合作能力

基本知识、常识

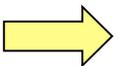
自然科学、社会科学、基本道德知识

Competency-Based Training

Here are competencies defined "as narrowly described practical knowledge, abilities, Skills and work virtues, which must be mastered by employees in real working contexts".
(Tippelt/Edelmann 2004)

Qualifications are dispositions of personality features oriented/aimed at professional/vocational activities (Hortsch 2006)

Earmarking, recoverability and applicability of personality traits
in the work process is the essential feature of qualification. (Kersten 1995)



以能力为本位的培训

这里将能力理解为“狭义范围内的与工作岗位紧密相关的实践性知识、技能和职业道德”。

(Tippelt/Edelmann 2004)

职业资格 是针对职业行为，从业者应具备的相关个性。
(Hortsch 2006)

职业资格的重要特征是在工作过程中表现出来的个人个性的可用性及其适用性。

(Kersten 1995)

Evaluation: The learner should be able to assess a situation. For it he should use both internal and external evaluation criteria

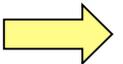
Synthesis: The learner should be able to link issues together and to merge substantively related statements into a whole and build on this new structures and systems can.

Analysis: involves the breakdown of a communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and/or the relations between the ideas expressed are made explicit.

Application: Learners should be able to transmit knowledge to other situations and specific event.

Comprehension: represents the lowest level of understanding. It refers to a type of understanding or apprehension such that the individual knows what is being communicated and can make use of the material or idea being communicated without necessarily relating it to other material or seeing its fullest implications.

Knowledge: The learner should be able to reproduce facts and their properties. This shall include, for example, Categories, criteria, events, words, technical terms, places, Symbols, formulas, data, people, etc.



6. 评估



评估: 学生应能够根据内部的和外部的评价标准来评价事实。

5. 综合



综合: 学生应能够事件或事物相互联系起来，从内容和整体上加以分析，并在此基础上创建新的结构和规则。

4. 分析



分析: 学生应能够抓取信息中的重要元素，了解各元素之间的关系，对各元素之间的关系加以论证。此外还应了解内在原理的结构。

3. 运用



运用: 学生能将已知的知识应用在其他事物或事件上。

2. 理解



理解: 学生应能够概括整个事件，总结相关信息，使用其他方式解释说明事实情况（比如，使用方程式、图表）或者由此推导出其含义及其隐含的结果。

1. 了解

了解: 学生应能够把事实及其特点进行复述。比如：类别、标准、事件、词语、技术概念、地点、标志、方程式、数据、人物等。

Naturalization: intuitive apply

Structure of act: coordination of various movements

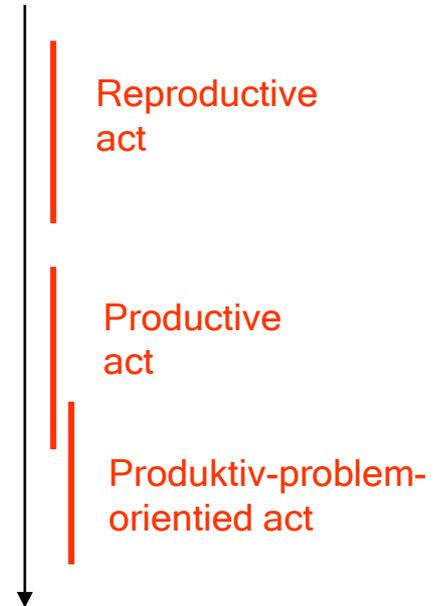
Specification: greatest accuracy in carrying out of the act

Manipulation: executing of acts according to instruction

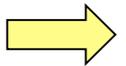
Imitation: imitation of observed act sequences

Acts as learning objectives

- Level 1 to reconstruct the act patterns
- Level 2 to choice the act patterns
- Level 3 to adapt the act patterns
- Level 4 to combine act patterns new
- level 5 to develop new act patterns



Increase of the self-dependence of act execution



行动作为教学目标

阶段1	理解行动模式
阶段2	选择行动模式
阶段3	调整行动模式
阶段4	组合行动模式
阶段5	拟订自身行动模式

复制性行动

创造性行动

针对问题的
创造性行动

独立的行动能力

不断增强

Thank you for your attention!

steffen.kersten@tu-dresden.de
<https://wwwpub.zih.tu-dresden.de/~kersten>