

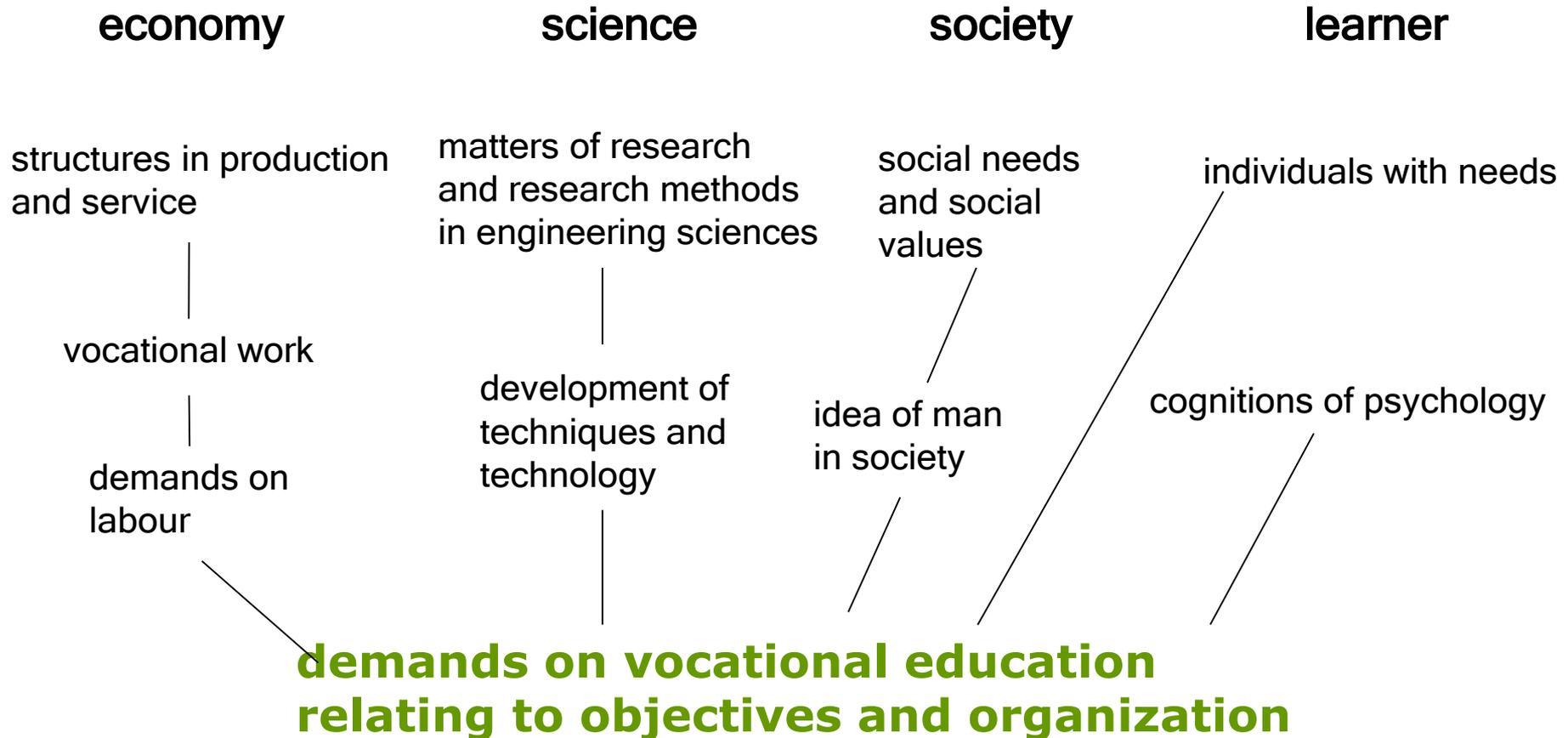
Didactics of Vocational Education

Complex Teaching procedures

Dresden, April 2021

Dr. Steffen Kersten

Influence factors of vocational education



对职业教育产生影响的各种因素

职业

教师该职业是
社会生产和
服务结构中的
重要组成部分

工程科学

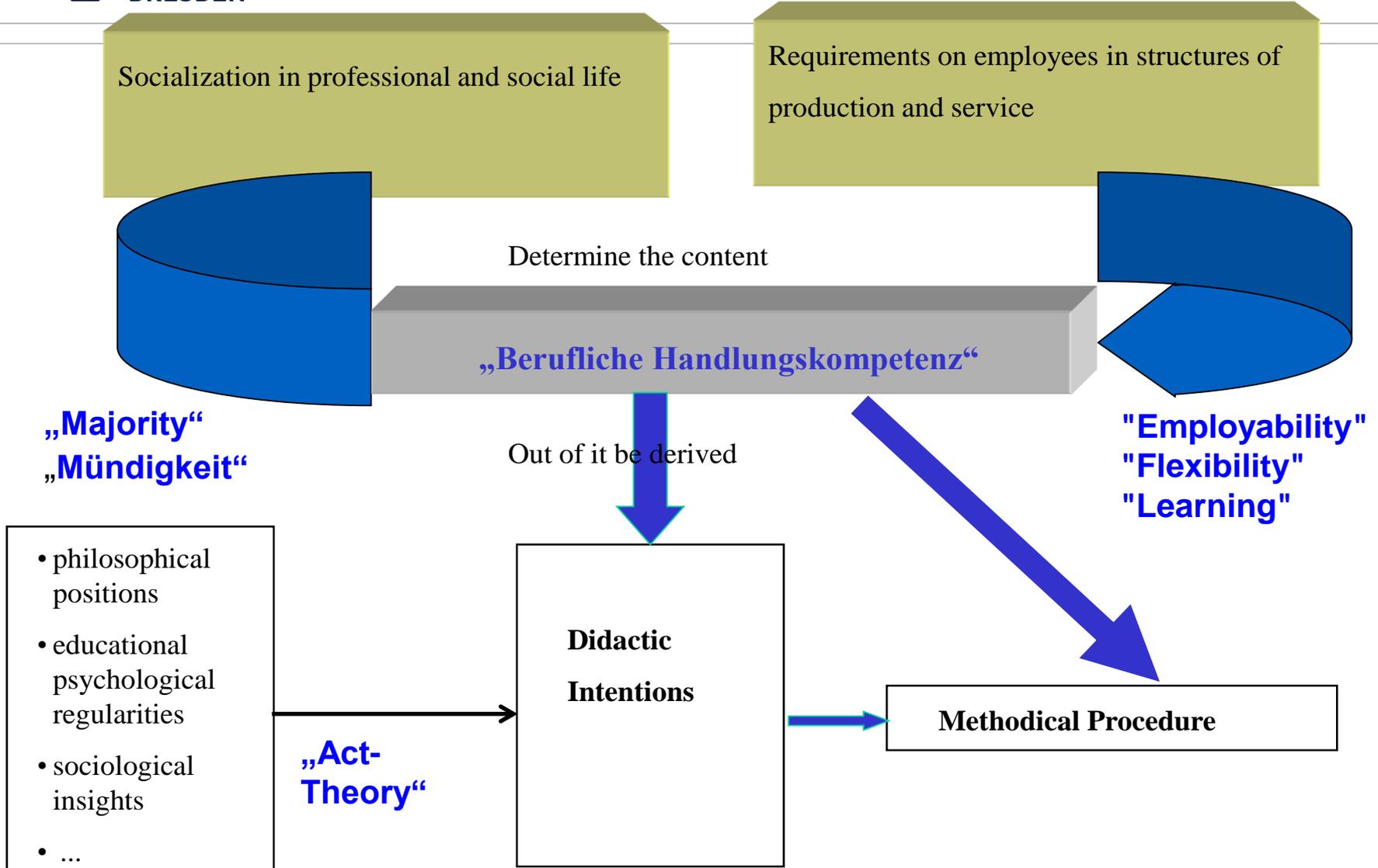
工程科学的发展
及其对技术、工艺
的影响

社会和教育政策

社会规范和
道德价值标准
→ 社会化过程
学校法、学校规章制度、
教学大纲、教学计划

教育学

教学法原理
教学方法的发展更新
媒体教学技术的变革



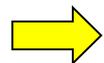
Aims of vocational education:

- “[imparting] **employability**, which combines technical expertise with the **general capabilities of human and social nature**
- [developing] **professional flexibility** to cope with changing requirements **in work and society**, including the perspective of Europe’s coalescence
- [awaking] readiness for vocational **further and continuing education**
- [assisting] the ability and willingness for **responsible action in the individual life and in public life”**

(Standing Staff of Conference of the Ministries of Culture Affairs:
General Agreement on Vocational Schools. 1991)

- Process-chain-oriented company organization instead of functional hierarchies
- Customer-orientation instead of product-orientation
- Responsibility for the project/venture and budget instead of hierarchically structured task management
- Working in teams or groups instead of working alone
- Complete operations instead of individual/single acts
- Self-regulation instead of standardized input/guidelines
- Involvement instead of heteronomy
- Continuous improvement instead of hope for innovation.

(cp. Frieling (1993): Das lernende Unternehmen, p.32)

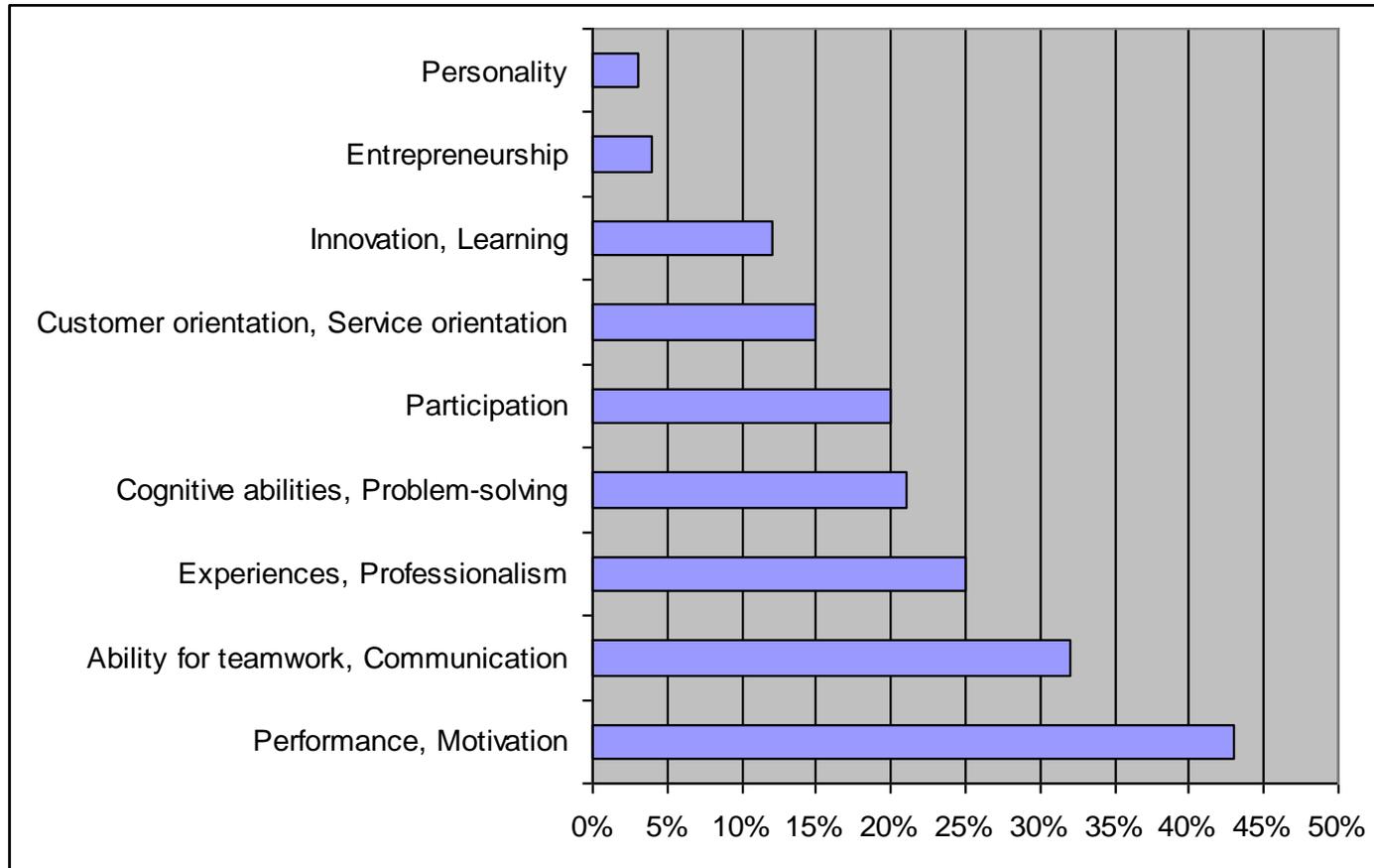


现代化生产结构的特征

- 以过程为导向的组织取代了功能等级制
- 以客户需求为导向取代了以产品为导向
- 项目和预算负责制取代了等级结构性的任务管理方式
- 团队或小组工作取代了单个个体作业
- 完整的行为取代了单一的工作
- 自我控制和管理取代了接受标准化指令
- 参与取代了依赖
- 持续性改善和优化取代了等待改革和创新

(Vgl. Frieling, Ekkehart: Das lernende
Unternehmen.- Hochheim 1993 , S. 32)

required qualifications of staff to be recruited



Source: Federal Institute for Vocational Training in Germany, 2001

- Working with projects ●
- Working with Case Studies (Harvard-Case-Method)●
- Business Game ●
- Role Playing ●

Calvin M. WOODWARD

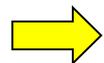
John DEWEY

William Head KILPATRICK.

Cognition and awareness are results of goal-oriented activities in natural and social environment

→ ***thinking experience***

Dewey: Democracy und Education 1916



Calvin M. WOODWARD

卡尔文 .伍德沃德

John DEWEY

约翰 杜威

William Head KILPATRICK.

威廉 基尔帕特里克

认知和意识来源于人类对其所处的自然和社会环境周密而有计划的分析。

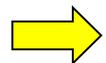
→ „**思考性经验**“

杜威：民主主义和教育，1916年。

“Project Work is

- planned action (single-handed)
- heartfelt (interests, necessities)
- that takes place in a social environment” (social responsibility)

Kilpatrick: The Project Method. Teachers College Report 1918, 19 S.319-335

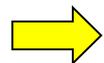


„项目教学是

- 精心策划的有计划的行为（独立的）
- 发自内心的（兴趣和需求）
- 在社会环境中开展的“。

基尔帕特里克1918

1. Starting with an obvious problem from the surroundings of the participants
(where does typhoid come from?)
2. Location, precise statement
 - general educational goals
 - educational relevance of action given in part through the problem, planning and experiment
3. Problem solving approaches
constructing a plan for solution finding, therefore precision of the target objective
4. Simulation of solution possibilities
imaginary implementation of the plan
5. Experimental proof
 - carrying out the plan as problem solution or construction of the product
 - when required coordinated labor distribution
 - practical implementation and use of results



1. 通过学员生活圈中出现的明显的问题开始（例如：伤寒从何而来？）
2. 定位、详述
 - 通过问题给出普通的培训目标
 - 通过问题、制定计划和实验来划分与培训相关的行动
3. 解决方案
 - 制作解决问题的计划，从而明确目标方向。
4. 模拟各种方案的可能性
 - 非现实的执行计划
5. 实验验证
 - 实施计划，比如解决了问题或制造出产品
 - 根据需求协调实施分工
 - 结果的实践转化和应用

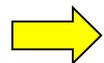
参看 卡尔 弗雷：项目教学法。 Weinheim, Basel 1991

Demands of the Progressives at the Beginning of the 20^t Century

- Self-directed activity of the student
- constructive activity
- participation in instruction planning
- product-oriented work

implementation of the idea of a practical education in the example of the working-school

(Georg KERSCHENSTEINER, Fritz KARSEN)



20世纪初 教育改革的需求

- 培养学生的独立性
- 建设性的活动
- 参与课程计划
- 生产为导向的工作
- 结合实践的培训 比如 劳作学校

(乔治 凯氏斯坦、菲兹 卡森)

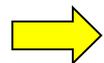
Essential Characteristics of the Working School Concepts in Russia

- productive acting as the educational element
- education on current realities
- attempts to converge brain-work and manual work

(BLONSKIJ und MAKARENKO)

Central Ideas of Project Work in the Sixties and Seventies

- Increase the integration of every-day life in education
- A new converging of brain-work and manual work
- Participation in the educational process and shaping of the process by the learner
- Collective learning

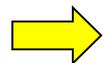


在60和70年代，项目教学的中心思想

- 日常生活再一次大量的融入到教育中
- 脑力劳动和手工劳动再一次结合
- 与学生共同商定和组织教育、培训的过程
- 共同的集体学习

1. A project is existent.
2. The work on the project requires structures of solving problems.
3. Project work is oriented at the experiences and interests of the learners.
4. Project work is characterised by complete learning acts.
5. Project work is coined largely by self-organisation and responsibility
6. Project work is carried out in bigger or smaller groups and also alone.
7. Project work is multidisciplinary and beyond their job.
8. The non concrete project as an objective or subjective utility value.

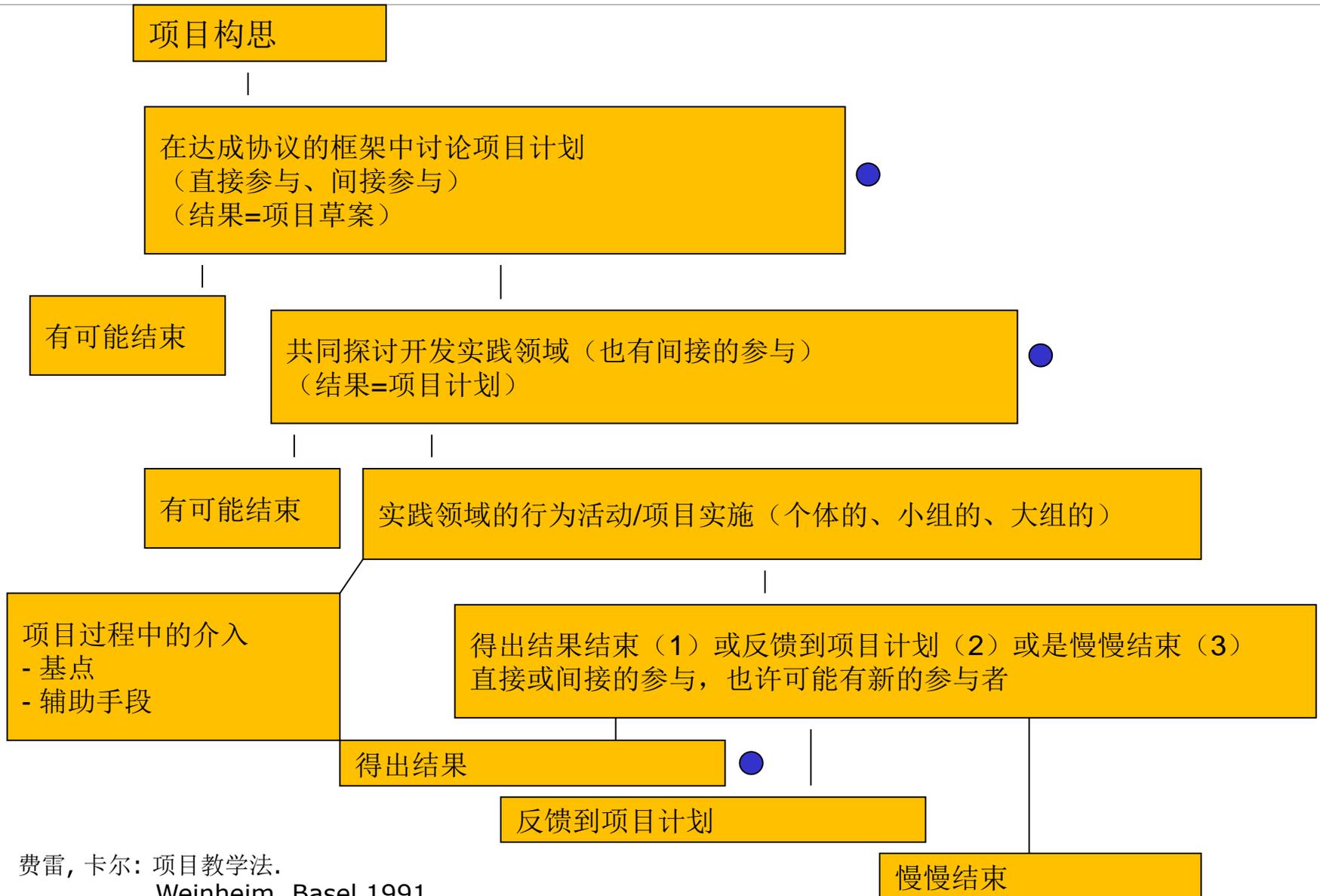
cp. - Gudjons, H.: Handlungsorientiert lehren und lernen. Bad Heilbrunn/Obb. 1989, S.58ff
- Frey, K.: Die Projektmethode. Weinheim, Basel 1991, S.15ff
- Hortsch, H.: Merkblätter zur Vorlesung. Dresden 1999





1. 一个现有的项目。
2. 使用项目能反映出解决问题的结构。
3. 项目应针对学生自身的经验和兴趣。
4. 通过完整的行为完成项目。
5. 学生自我组织、自我负责地完成项目。
6. 集体学习是项目教学的主导形式。
7. 它是跨学科的。
8. 项目的结果应有客观的或主观的使用价值。

vgl. - Gudjons, H.: Handlungsorientiert lehren und lernen. Bad Heilbrunn/Obb. 1989, S.58ff
- Frey, K.: Die Projektmethode. Weinheim, Basel 1991, S.15ff
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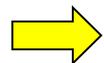


Criteria for the Analysis of the Project Initiative

- Interessen der Lernenden
- Bildungswert des Projektes
- Realisierbarkeit des Projektes
- Gebrauchswert des Produktes

The project Outline contains information on

- the time limit
- the product
- the different fields of work (roughly)



驱动项目的各种原则

- 学生的兴趣
- 项目的教育价值
- 项目的可行性
- 项目结果的使用价值

项目草案 包含下列各项

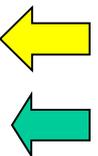
- 时间范围
- 要得出的结果
- 研究领域 (概括的)

Product: a) power supply unit
b) developed and tested circuit for an power supply unit with documentation

Duration: a) ca. 10 days
b) ca. 5 days

Fields of activity:

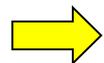
- literature study on transformer, rectifier,
- design of circuit
- account of components
- finding of characteristic curve of components
- experimental test of power supply unit
- documentation of solution
- (making of power supply unit)



The Project Plan

- list of activities
- distribution of activities among groups and individuals
- development of a time schedule for each activity
- qualification objectives (knowledge, skills)

→ important: the higher aim is not the product but the qualification of the learners



- 列表各种工作任务
- 将任务分配给各组和个人
- 制作各个任务的时间计划
- 达标目标 (知识、能力、技能)

activities:

1) *designing and dimensioning of transformer and rectifier*
(day 1 and 2)

- ...
- ...
- ...

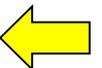
2) *designing and dimensioning of voltage control*
(day 3 and 4)

- ...
- ...
- ...

3) *experimental test of voltage stability of power supply unit*
(day 4)

- ...
- ...
- ...

4) *completion of documentation / presentation of results*
(day 5)



(1) the intentional end

the project work ends with the completion of the product

(2) feed back to the project initiative

participants compare final result and starting point of the project

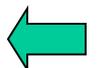
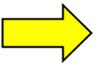
(3) phasing out

the strived for qualifications have been achieved
through project work (certain skills, knowledge)



Variants of the work with case studies

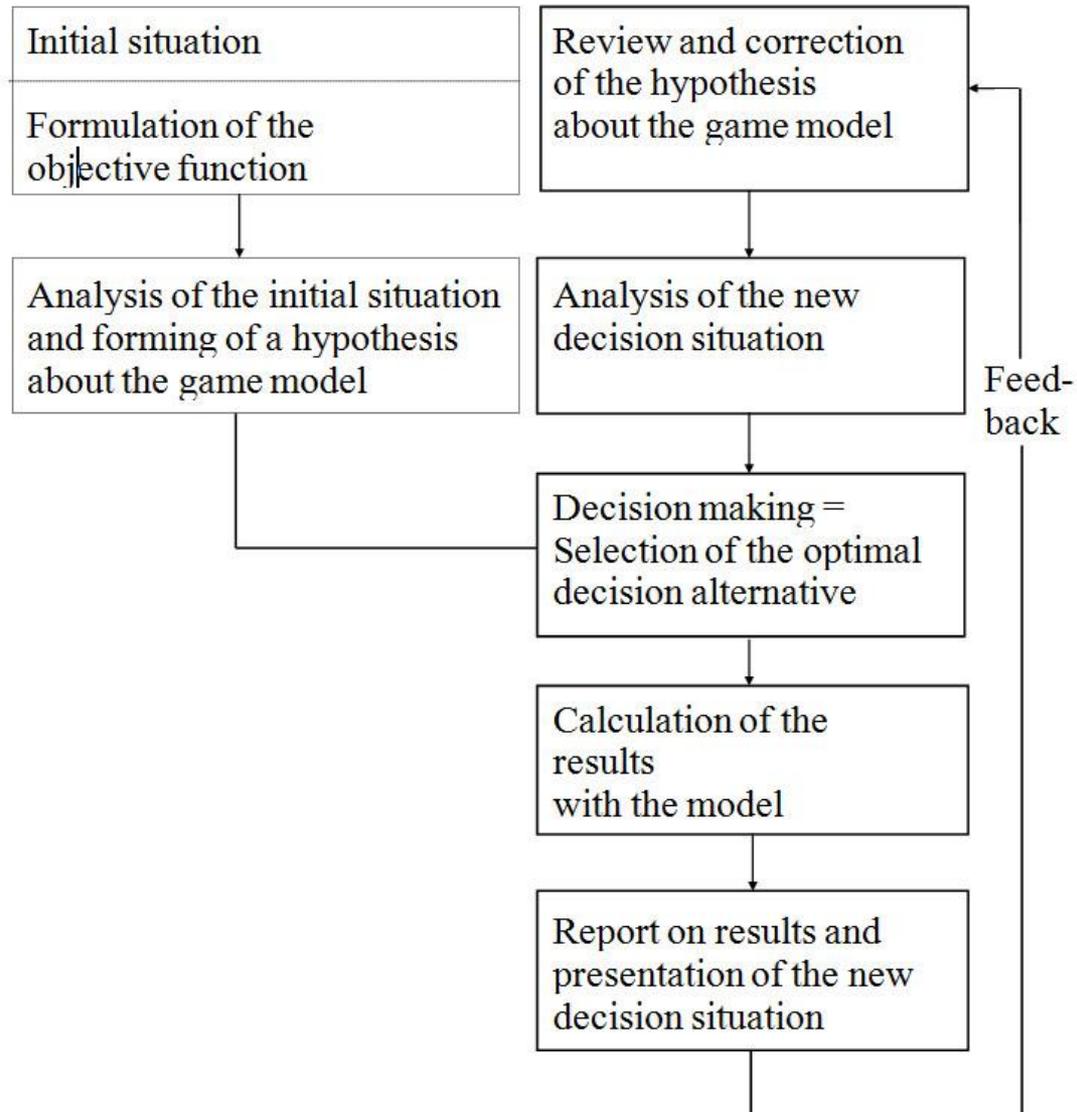
Method	Problem recognition	Acquisition of information	Problem solving	Criticism of solution
Case-Study-Method	Focal point: hidden problems need to be analyzed	Information is given	Possible solutions to the problem are to identify and decisions to made	Comparison of the solution with the decision in the real world
Case-Problem-Method	problems are clearly stated	Information is given	Focal point: Possible solutions to the problem are to identify and decisions to made	Comparison of the solution with the decision in the real world
Case-Incident-Method	the case is incomplete represented	Focal point: Information is to acquire independently	Possible solutions are to identify. The case is solved.	
Stated-Problem-Method	problems are given	Information is given	The final solutions are given. It will look for alternative solutions.	Focal point: Critique of the given solutions



方法	识别问题	搜取信息	解决问题	评论解决方案
案例-研究-方法	重点: 分析隐藏的问题。	信息已给。	找出解决问题的各种方案, 选择方案。	将选择的方案与现实加以对比
案例-问题-方法	明确地指出了问题。	信息已给。	重点: 找出解决问题的各种方案, 选择方案。	将选择的方案与现实加以对比
案例-事件-方法	表述的不完整。	重点: 必须自己搜集信息。	找出解决问题的各种方案。这时, 事情已可以解决。	
叙述-问题-方法	问题已预先给出。	信息已给。	解决方案已给。 需要找寻更好的解决问题方案。	重点: 评论之前给定的方案



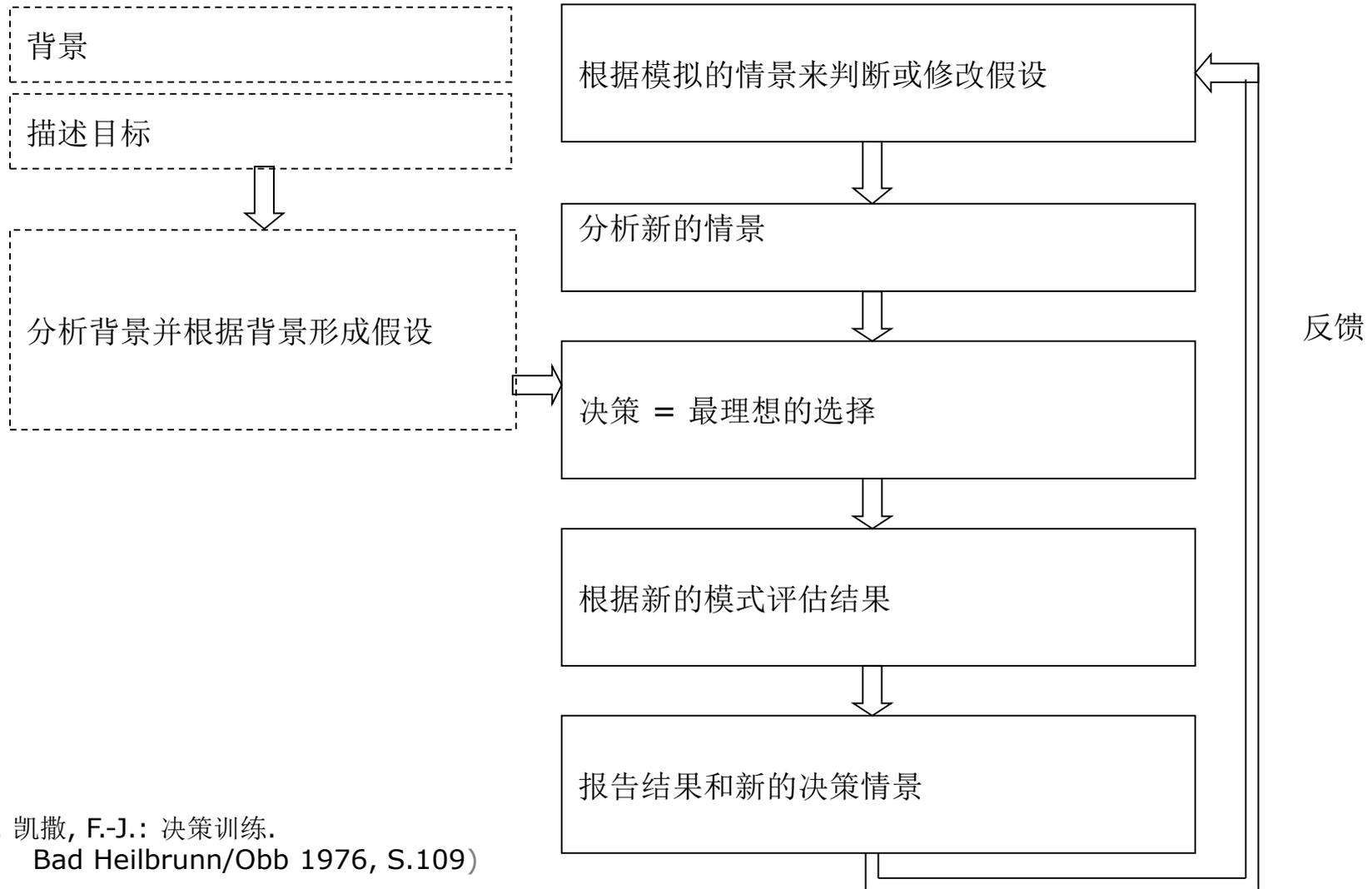
Process of business game



cp. Kaiser, F.J.:
Entscheidungsstraining 1976, S. 109



表演（决策性模拟）的流程



(参看. 凯撒, F.-J.: 决策训练.
Bad Heilbrunn/Obb 1976, S.109)



„Role playing is a form of play, in which the participants spontaneous play in a fictional game action with the intent to process behaviour problems - both playfully presented as discuss afterwards.

In this game, the social relations between the players as the real visible behaviour should become criticized and changed.”

Binger, L.: Fall aus der Rolle. Spiele in der Schule.
Berlin 1977, S. 93f.

Social basic skills after KRAPPMANN

- the ability to empathize with a partner, to appraise his needs → **(emphaty)**
- the ability to conflicting needs and expectations of partners to be able to endure
→ **(ambiguity tolerance)**
- the ability to adapt the own role behaviour to the situation
→ **(communication skills)**

cp. Krappmann, Lothar: Soziologische Dimension der Identität: strukturelle Bedingungen für die Teilnahme an Interaktionsprozessen. Stuttgart 1988

1. Orientation of the group (confrontation with the problem)
2. Selection of participants of the role play
3. Planning of the scene sequence
4. Instruction of the audience on their role as participant observers
5. Role play
6. Discussion and evaluation
7. Next games (exchanged roles, alternate scenes)
8. Next discussions
9. Summary and generalization

Thank you for your attention!

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