



Complex Teaching Methods

History

Dresden, December 2016

to create possibilities, to understand better the processes in
the real world and to make decisions free of risk
→ Acting in simulated worlds

chess
ca. 800 BC.
Persia



- The chess game is based on a model.
- Models are replicas of any sections of reality.
 - fight aristocratic-hierarchical societies
 - building a business
- The chess game takes place on a defined game field.
 - topographic maps (Vinturini 18. century)
 - sandbox (Reissewitz 19 century)
 - terrain clippings
 - market
- The game of chess is based on rules.
 - rules of warfare
 - business rules
 - technical rules

These rules determine the own actions as well as the feedback of the game model.

- The "battle situation" in chess creates a competitive situation
- The acting of the players requires decisions.
- The decisions and consequences from their are without risk in relation to reality.
- The chess game is results-oriented. "Checkmate"
- In chess, strategies can are tested.
- Chess a "duopoly" simulation (two parties)
 - Monopolistic simulation (for example flight simulator)
 - Polypolistic simulation (for example stock market game)

Source: Geilhardt/Mühlbrandt 1995, p.57 ff.

- Increasing influence of quantifiable factors and impact-dimensions on the game decisions

Already in 1256 in a teaching poem of Thomasin of Zerclaere

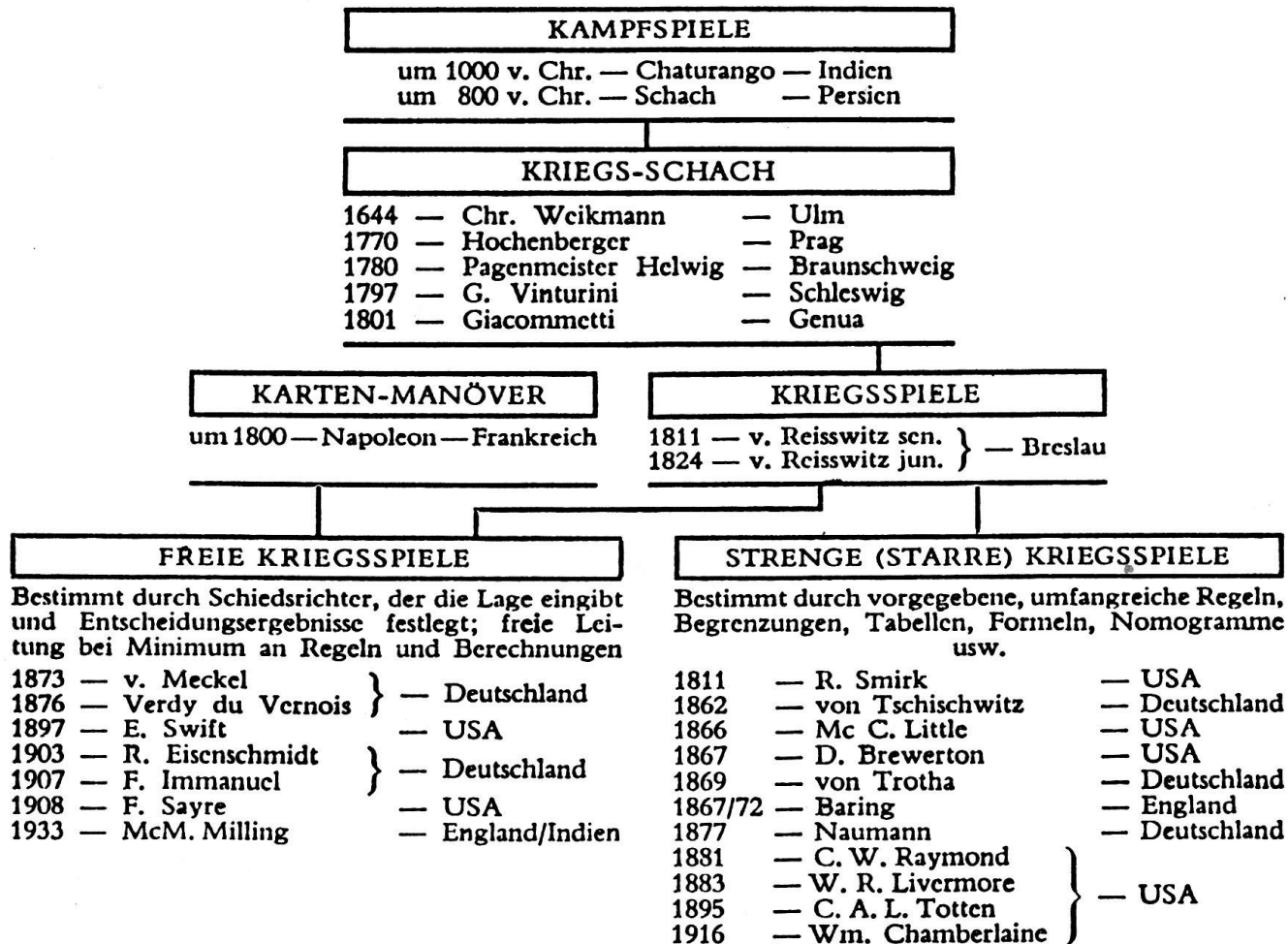
→ Picture of a game board filled with numbers



- War games of the 18th century
mathematical calculation took the place of human assessment
Slide rule as the most important "instrument of struggle" to defeat the opponent mathematically
- Problem of insufficient consideration of qualitative factors in mathematical decision models - eg Yalu simulation

- 1956 American Management Association (AMA) – the first computer-based business simulation game
→ simulation of areas and processes of a company
- 1964 THORELLI, University Indiana
→ first full model of a company– INTOP (International Operations Simulation)
- 1981 ROHN, Establishment of the German business game center, since 1989 European Network for System Simulation and Management Gaming
→ Development of EMMSIM (European Market Management Simulation)

The family tree of the business game





History of the Business Game

SPIELTHEORIE

1927/44
v. Neumann } — USA
Morgenstern }

OPERATIONS RESEARCH

Seit 1940 — Radar —
U-Boot-Abwehr —
USA/England
1942 — McKinsey —
USA

KRIEGS-PLANSPIELE

1939 — „Barbarossa“ } — Deutschland
1940 — „Seelöwe“ }
1940/42 „Totaler Krieg im Pazifik“ — Japan
1940/44 „Ardennen-Offensiven“ — Deutschland

1890 1. erfolgreicher Einsatz: 11. Volkszählung
1939 1. Programmgesteuerte Rechenmaschine Z 3 — elektromagnetische Relais
— Zuse — Deutschland
1944 MARK 1 — Steuerung durch dual-dezimalen Code — Aiken — USA
1945 Remington Rand ENIAC — 1., mit 18000 Elektronenröhren programmgesteuerte Rechanlage — Eckert, Mauchly, Goldstine — USA
1955 Erste Anlagen mit Transistoren — USA

AUTOM. DATEN- VERARBEITUNG

1880 1. Lochkartenmaschine — Hollerith
— USA

UNTERNEHMENS-PLANSPIELE

1956 — American Management Association
1957 — Andlinger — USA
1957 — CIT Management Came — USA
1957 — Remington Rand / IBM — USA
1957 — Pillsbury Company — USA
1958 — Prof. Jackson UCLA — USA

MILITÄRISCHE PLANSPIELE

1950 — RAND Corporation — USA
1956 — Navy Electronic Warfare
Simulation NEWS — USA

Urheberrecht: Dr. Rohn

Quelle: Geilhardt/Mühlbrandt 1995, S.66

"Play is a voluntary action or employment, within certain fixed limits of time and space to voluntarily accepted, but absolutely binding rules is carried out, has its goal in itself and one is accompanied by a sense of excitement and joy and awareness of otherness 'than, ordinary life'."

Source: Huizinga: 1938/1991, S. 37

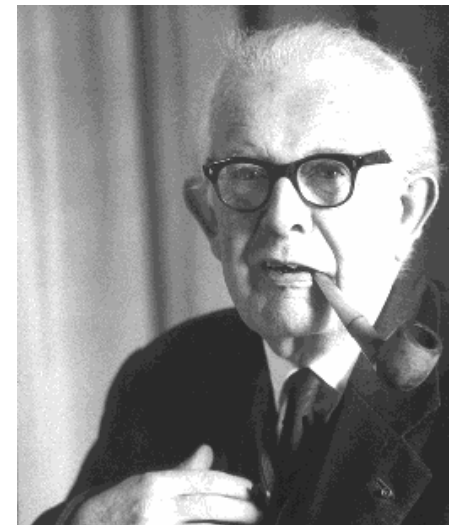
PIAGET

- Game as a "technique of appropriating the world" and important factor in the development of intelligence
- Cognitive development through assimilation and accommodation
- Internalization of rules and experiences → assimilation
- Imitation in the game (role playing) → accommodation

Source: Piaget 1969, p.10 ff.

- Phase 1: Sensumotor function - Exercise Games 0 - 2 years
- Phase 2: Presentation - Icon Games 2 - 6 years
- Phase 3: Consideration - Rule games from 6 years

Source: Piaget 1969, p.146 ff.



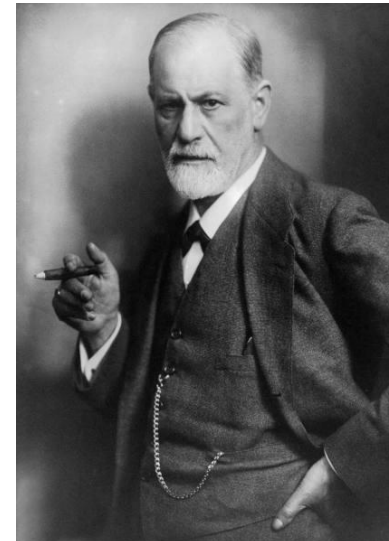
HECKHAUSEN

- Activation potential in changes of tension and relaxation
- Activation Circles: novelty and change, surprise content, Intricacy, uncertainty or conflict
- Game creates behavioral dispositions of motivation and willingness and helps to cope with experiences

FREUD

- Drive theory as a basis of understanding of game
- Compensatory function of the game by pleasure-aversion principle
- Experiences are processed in the game with content that provide pleasure
- Pleasure results from the in-game enabled wish fulfillment and the possibility to process aversion.

Source: Freud 1920



COMENIUS 1656: Schola Ludus (The School as game)

- Learning in the game
- Exercise by playful rivalry
- School as "cheerful playground of the mind"

Source: Comenius 1888, p.187



LOCKE 1693:

- Lust in the game as the drive of learning

"For a Child will learn three times as much when he is in tune, as he will with double the Time and Pains, when he goes awkwardly, or is drag'd unwillingly to it . If this were minded as it should, Children might be permitted to weary themselves with Play, and yet have Time enough to learn what is suited to the capacity of each Age"

Source: Locke 1699, p.113

FRANCKE 1691:

- Rejection of the game in the Pietist Pedagogy

Rousseau 1762: Emile

- „Intrinsic value "of the child and the right to the natural play behavior of the child

Role: etymologically from the Latin "rotulus" (= Rotated)

- Parchment with texts and instructions for Theatre Performers of the 17th century
- Role in the dramatic arts:
scenic remarks and instructions to the actor

a) Theatrical access to role-play

- performing game as an art form

The role play in psychoanalysis and psychotherapy

MORENO ca.1922

→ Insight into the behavior of others through role-play

„ Any deed (action) is realised as expression of the individual in exercise of the appropriate role.
... In his roles the human put himself in relation with fellow human beings and the world,
fulfills himself and changes the world.

“When the human is acting in rolls, he impacts back shaping and changing to the conditions
which influence his character and his actions.“

Source: Leutz 1974, p.2

→ The role in the psychoanalysis is, "the sum of all unconscious expectation
fantasies" that are addressed to an individual“.

Source: Warm 1981, p.88

b) psychoanalytic access to role-play

The role play in sociology

- first sociological definition of the role concept in 1887
Ferdinand Tonnies: Community and Society
- Theoriy of roles after Ralf LINTON 1936: The Study of Man
(Combination of status and role in the social structure)

„ From a sociological perspective, the role is the sum of all expectations which are directed to a holder of a position. Expectations are therefore linked to the position..“

Source: Warm 1981, p.87

c) sociological access to role-play

- theatrical aspect
 - Accomplishment of given plays through to performing game as an art form
 - Only when a guideline is available

- psychoanalytical aspect
 - In the game's plot are projections and transfers of Player on his role in the game instead.

- sociological aspect
 - Processing of social conflicts
 - If in the game social positions should be taken over, to these positions addressed experiences are updated consciously or unconsciously

Source: Warm 1981, p.89

- Historical roots in the casuistry of the legal and medical teaching
- Casuistry (Latin casus, "case") generally refers to the consideration of individual cases in a particular subject area.

Case study as a method of knowledge-finding by individual case study

Case study as a teaching method through case-based problem solving

Harvard Business School Lecture Schedule 1908:

„In the courses on Commercial Law, the case-system will be used“

Source: Kaiser 1976, p.51

- Transfer of the case method in the business area under W.B. Donham(2. Dean)
- Order at the Harvard Bureau of Business Research to collect case materials for all subjects

Project: lat. proiectum, Neutrum zu proiectus = 'thrown forward,
→ targeted, unique intention

Italy 16. century

- Development of „Progetti“ in architectural education

France 18. century

- Handling of „Projets“ at Académie Royale d'Architecture

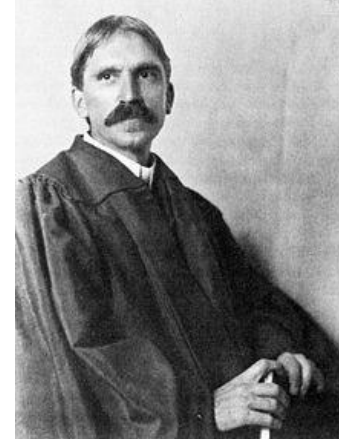
Germany 19. century

- Handling of „Projekten“ in the engineering education

Calvin M. WOODWARD

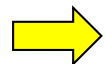
John DEWEY

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

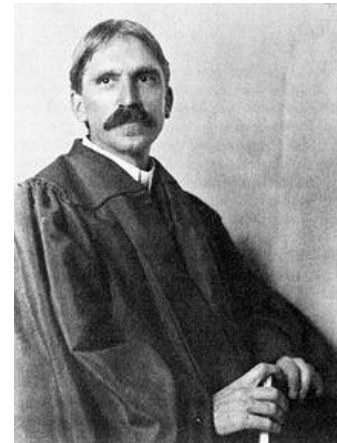
William Head KILPATRICK.

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。

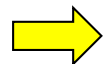


Project Work is

- 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



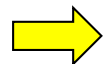
„项目教学是

- 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

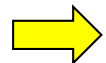
参看 卡尔 弗雷：项目教学法。 Weinheim, Basel 1991

Demands of the Progressives at the Beginning of the 20t 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

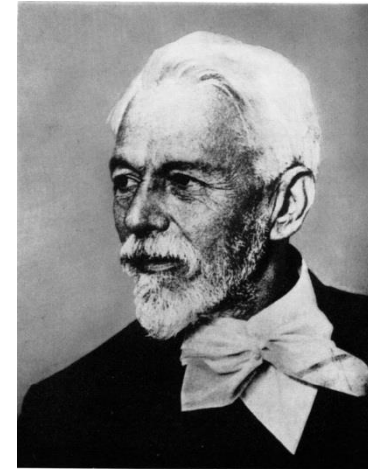
(Georg KERSCHENSTEINER, Fritz KARSEN)



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

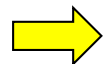
- productive acting as the educational element
- education on current realities
- attempts to converge brain-work and manual work

(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

- Comenius, Johann Arnos: (Schola ludus). Die Schule als Spiel. Langensalza 1656/1888
- Dewey, John: Demokratie und Erziehung (1916). Breslau 1930
- Frey, Karl: Die Projektmethode. Weinheim, Basel 1991
- Freud, Sigmund: Jenseits des Lustprinzips. Leipzig, Wien Zürich 1920
- Geilhardt, Thomas; Mühlbrandt, Thomas (Hrsg.): Planspiele im Personal und Organisationsmanagement. Göttingen 1995
- Heckhausen, Heinz: "Entwurf einer Psychologie des Spielens",
In : Flitner, Andreas (Hrsg.): Das Kinderspiel. München 1974, S. 133-149
- Huizinga, Johan: Homo Ludens. Vom Ursprung der Kultur im Spiel. Reinbek 1939/2004
- Kaiser, Franz-Josef: Entscheidungstraining. Bad Heilbrunn/Obb. 1976
- Keim, Helmut (Hrsg.): Planspiel, Rollenspiel, Fallstudie. Köln 1992
- Killpatrick, William Heard: The Project Method. The use of the purposeful act in the educative process. Teachers College Record 19 (1918) S.319-335
- Klippe, Friederike: Spieltheoretische und pädagogische Grundlagen des Lernspieleinsatzes im Fremdsprachenunterricht. Frankfurt a.M. 1980, <http://epub.ub.uni-muenchen.de/8642/1/8642.pdf>
- Leutz, Grete Anna.: Das klassische Psychodrama nach J.L. Moreno. Berlin 1974
- Locke, John: Some Thoughts Concerning Education. London 1693/1699
- Piaget, Jean: Nachahmung, Spiel und Traum. Die Entwicklung der Symbolfunktion beim Kinde. Stuttgart 1969
- Warm, Ute: Rollenspiel in der Schule. Tübingen 1981



**Thank you for
attention!**

Dresden, December 2016