ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

einführung in das serious game design

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seminar im sose 2005
02.05.2005

D**ARCH**

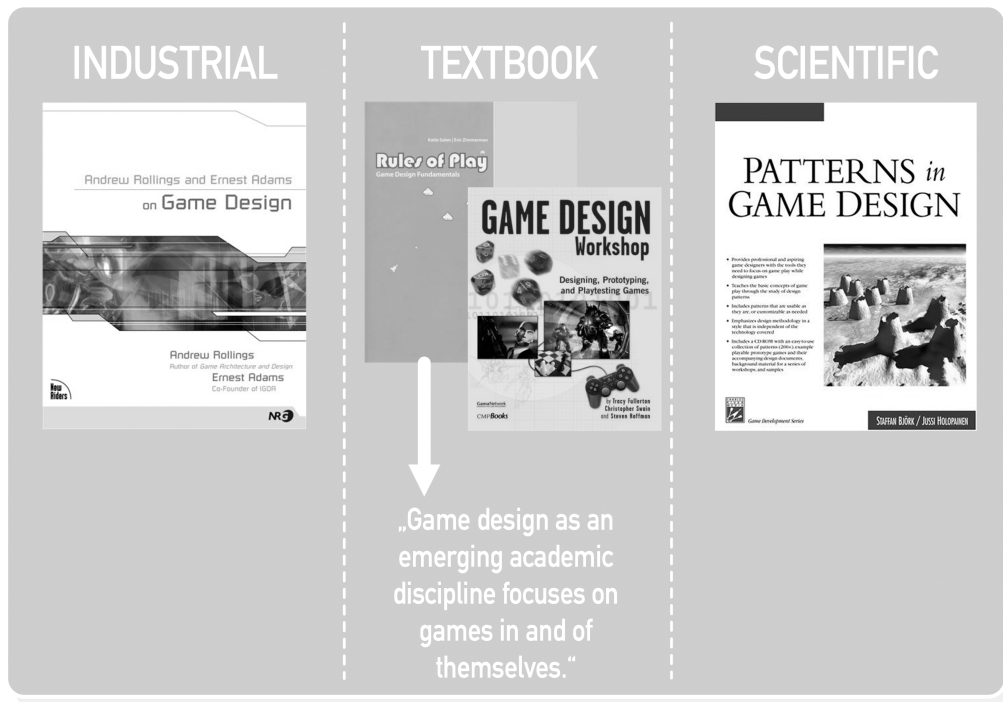Faculty of Architecture

ablauf

• background

• was ist serious game design?

• game design formal

• game design dramaturgisch

• game design systemisch

• game design methoden

• übung: übersetzung eines kinderspieles in ein ablaufdiagramm

background spw

was ist serious game design?

game design als disziplin

INDUSTRIAL — Andrew Rollings and Ernest Adams on Game Design

TEXTBOOK — Rules of Play, Game Design Workshop

SCIENTIFIC — PATTERNS in GAME DESIGN

„Game design as an emerging academic discipline focuses on games in and of themselves."

def. game

a game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome.

(Salen/Zimmerman 2004)
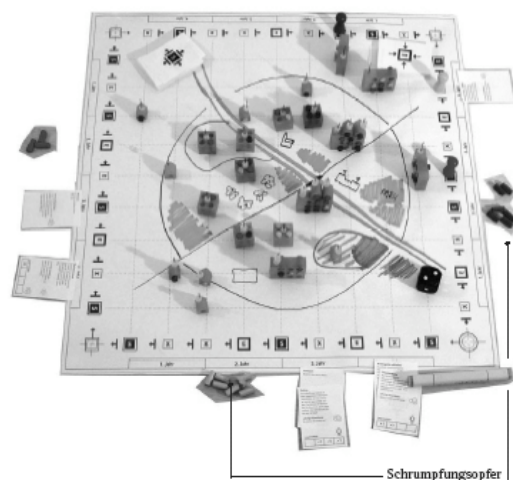
def. serious game

a serious game is a learning system in which players engage in an (artificial) conflict, defined by rules, that results in a quantifiable outcome; this game system is entertaining and experiential, yet following non-entertainment goals.

(Salen/Zimmerman 2004, add. spw)

serious game design: bildung / stadtplanung

raumtaktik

So wird BürgerMeister gespielt:

Einfamilienhäuser   Stadthäuser   Platten

Glücksperlen

Strategiekarten

Ereigniskarten

Einwohner

Schrumpfungsopfer

serious game design: security

911 Survivor - mod für
unreal tournament 2003

selectparks.net (au)
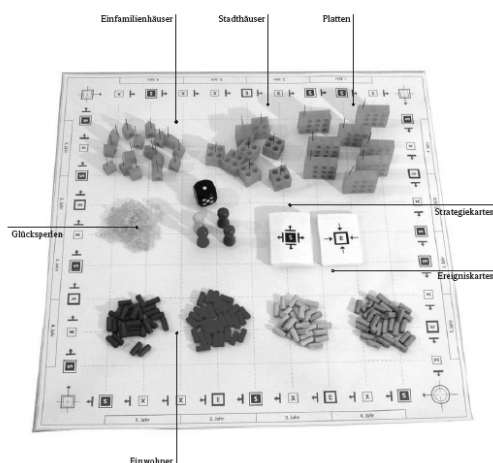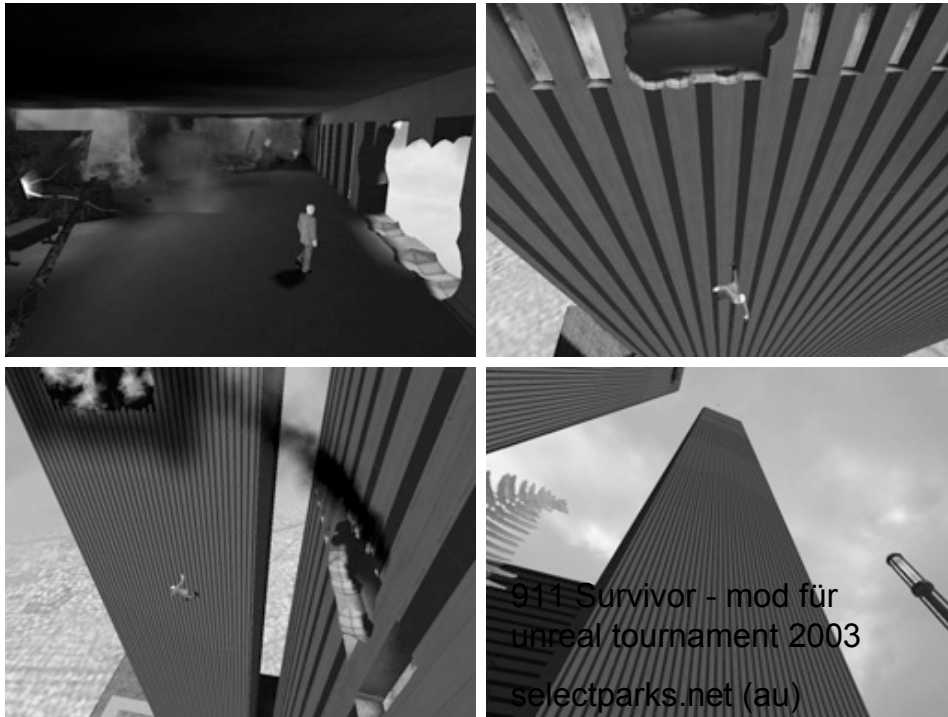
serious game design: security

MIT

MIT / Environmental Detectives, Prof. Eric Kopfer

serious game design: policy

serious game design: gesundheit

serious game design: gesundheit

serious game design: gesundheit

serious game design: gesundheit

series of mini games using psychophysiological
biofeedback (USB / director based by wellness
company The Wild Divine Project) for remotely
controlling computer integrated building services
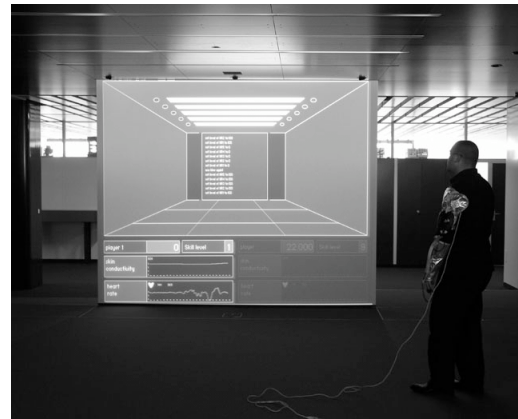
serious game design: gesundheit

Surgery Sims

- Laser Surgeon: The Microscopic Mission (Activision)
- Life & Death I (Software Toolworks IBM/Mac/Amiga)
- Life & Death II (Software Toolworks IBM/Mac/Amiga)
- Surgeon (Independent title that became basis for Life & Death Mac and maybe IBM)
- ER (Legacy Interactive for PC not yet released)
- Microsurgeon (Imagic published for Intellivision)
- Virtual Surgeon (PC and published by ISM Interactive which did L&D series and Surgeon)
- Combat Medic (Legacy Interactive for PC)
- CodeRed (Legacy Interactive for PC)
- 911 Paramedia (Legacy Interactive for PC)

System Sims/Sims

- ThemeHospital (Bullfrog/EA PC)
- SimHealth (Maxis/ThinkingTools)
- Epidemic (SSI)

Arcade Games Dealing with Anatomy and/or Health

- Microcosm (Psygnosis) Released for SegaCD and 3DO
- Ozzy & Drix (GameBoy Advance)
- Mindwalker (Amiga) Published by Commodore developed by Bill Williams
- AlphaWaves (Infogrames)
- Deus (PC)
- Robinson's Requiem (PC)

**Health Games Commercially Published by Click Health (previously called Raya Systems)**

- BG Pilot (helps kids with diabetes keep track of blood glucose, in a game format), (PC) 1989
- AIDS Avenger, (PC) 1991
- Captain Novolin (diabetes self-management), (SNES) 1992
- Rex Ronan (smoking prevention), (SNES) 1993
- Packy & Marlon (diabetes self-management), (SNES) 1994; (PC) 1998
- Bronkie the Bronchiasaurus (asthma self-management), (SNES) 1995; PC 1999

Psychological Interaction

- Alter Ego (Activision by Dr. Peter Favaro) Two versions Female and Male were released.
- Mind Mirror (EA by Timothy Leary)

quelle: www.gamesforhealth.org

GAMEPLAY / PLAYABILITY TEST: FROM PEN & PAPER TO FINAL

CONTROL

RESISTANCE

| ACTION | STRATEGY | ADVENTURE | ROLE PLAYING | SIMULATION |

| RESOURCES | CONFLICTS | BORDERS | RESULTS | STORY | DRAMATIC ARC | ADAPTION | DYNAMICS |

| FUN STIMULI | INTERACTIONS | OBJECTIVES | PROCEDURES | CHALLENGE | FLOW | PREMISE | FIGURE(S) |

FORMAL ELEMENTS

REWARDS

DRAMATIC ELEMENTS

GAME DESIGN SYSTEM (cf. Fullerton/Swain/Hoffman 2004)

GAME CONFLICT

EVERYDAY MOBILITY, MEDIA, AND COMPUTING

| THEORY I | THEORY II | THEORY III |

| LIVING | EDUCATION | POLICY | HEALTH | BUSINESS | MILITARY / SECURITY | POLITICS / SOCIAL | MARKETING |

| BODY | ARTEFACT | (NON-)ROOM | LEVEL | BUILDING | COMPLEX | PLAZA | STREET | QUARTER | CITY | LANDSCAPE |

PLAYER MODEL I

STRATEGY OF EXPECTATIONS, MOTIVES, AND NEEDS

PLAYER CON-TEXT
Areas of living, life & play session situation, medial experience, roles (...)

PLAYER CO-TEXT
Wishes, emotions, interests, phantasies, skills, life experience, gender, age (...)

GAMES AS WIDE SPREAD 21st CENTURY MEDIUM

PLAYER MODEL II

STRATEGY OF EXPECTATIONS, MOTIVES, AND NEEDS

PLAYER CON-TEXT
Areas of living, life & play session situation, medial experience, roles (...)

PLAYER CO-TEXT
Wishes, emotions, interests, phantasies, skills, life experience, gender, age (...)

SERIOUS GAME DESIGN

A serious game is a system in which players engage in an (artificial) conflict, defined by rules,
that results in a quantifiable outcome; this game system is entertaining and experiential, yet following non-entertainment goals. (Salen/Zimmerman 2004, add. Walz)

game design formal

spieler/in alltag: ko-/kontexte

PLAYER MODEL

STRATEGY OF EXPECTATIONS, MOTIVES, AND NEEDS

PLAYER CON-TEXT
Areas of living, life & play
session situation, medial
experience, roles (...)

PLAYER CO-TEXT
Wishes, emotions, interests,
phantasies, skills, life
experience, gender, age (...)
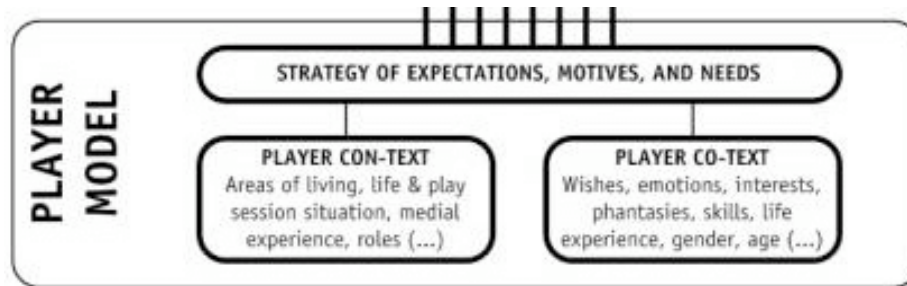
reizkonfiguration – „spass"

Reizkonfiguration von Spielkonstrukten

Kämpfend: Wettkampf, Unge-wissheit, Sport, Spannung; meta-phorische Bezüge

Mut, Wagnis: riskante Spielformen

Dem Glück vertrauend: sich dem Zufall überlassen

Unterhaltend: Abwechslung, Witz, Gag, Parodie, mediale Entsprechungen und Bezüge

Problemlösend: denkerisch, Strategie

Gestaltend: herstellend, bearbeitend, künstlerische Produkte

Genießend: ästhetische Erfahrungen; sinnliche Eindrücke

Verwandelnd: andere Rollen annehmen, aus sich heraus kommen, andere Seiten leben

Sammelnd: Aneignung verschiedner Objekte: komplettieren, systematisieren

Rauschhaft: Sich dem Spielprozess überlassend

Meditativ: Ruhe, Entspan-nung, zu sich selbst kommen, selbstreflexiv

spieler/in: in-game

Single Player vs. Game

Multiple Indvidual Players vs. Game

Player vs. Player

Unilateral Competition

Multilateral Competition

Cooperative Play

Team Competition

spieleranzahl

spielerrollen in-game

spielerinteraktions-muster

ziele

kurzfristig

mittelfristig

langfristig

prozeduren

starthandlung
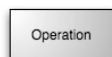
handlungsprogression

spezialhandlungen

auflösungs-/schlusshandlung

handlungs-

notwendigkeiten

handlungs-

möglichkeiten

GAME STATE

prozeduren

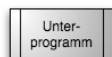- Oval: Start, Endepunkt, weitere Grenzpunkte

  Start/Stop

- Pfeil, Linie: Verbindung zum nächstfolgenden Element
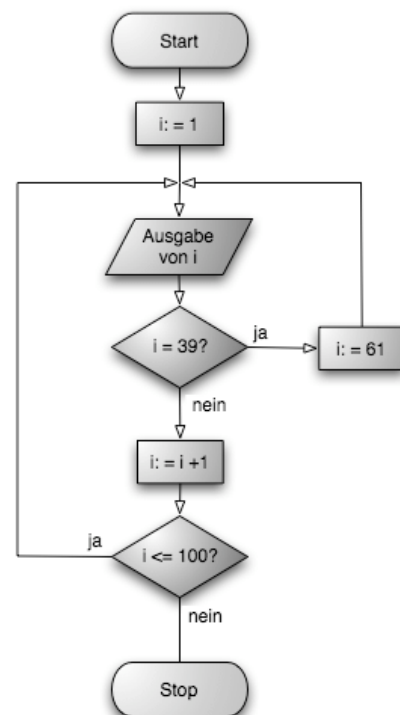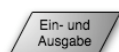
- Rechteck: Operation

  Operation

- Rechteck mit doppelten, vertikalen Linien: Unterprogramm

  Unter-programm

- Raute: Verzweigung

  Verzweigung — nein

  ja

- Parallelogramm: Ein- und Ausgabe

  Ein- und Ausgabe

Start

i: = 1

Ausgabe von i

i = 39? — ja → i: = 61

nein

i: = i +1

ja — i <= 100?

nein

Stop

regeln

implizite regeln: etikette, ko-/kontext

operationale regeln: spielanleitung

konstitutive regeln: mathematisch-logisch

ressourcen

def. bestände, aus denen geschöpft wird, um bestimmmte ziele zu erreichen; einzelne ressourcen müssen im spielsystem

1) nutzwert besitzen

2) begrenzt verfügbar sein

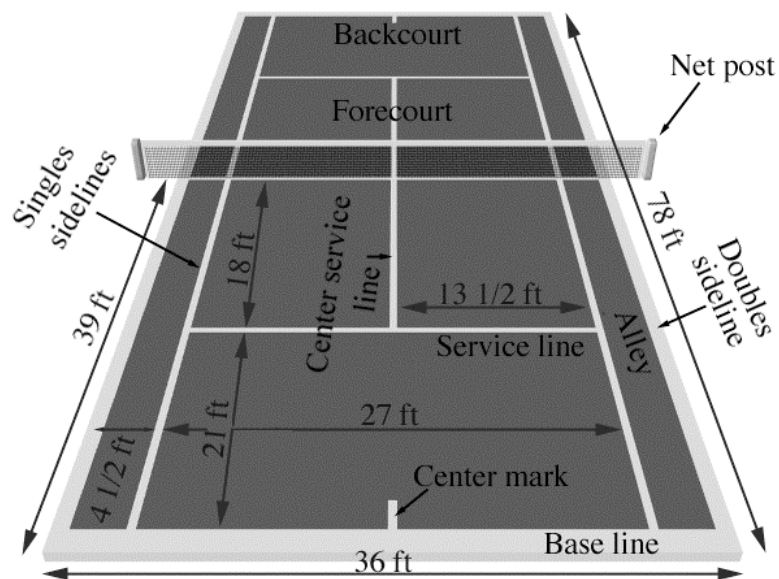beispiele: leben, einheiten, stamina, geld, handlungen, objekte, terrain, zeit

konflikte

z.b.

- hindernisse

- opponenten

- dilemmata

spielgrenzen I

spielgrenzen II

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ergebnis

z.b. *gewinnen / verlieren, lernen, erleben*

ergebnisstruktur ist abhängig von

spielerinteraktions-muster

& spielziel

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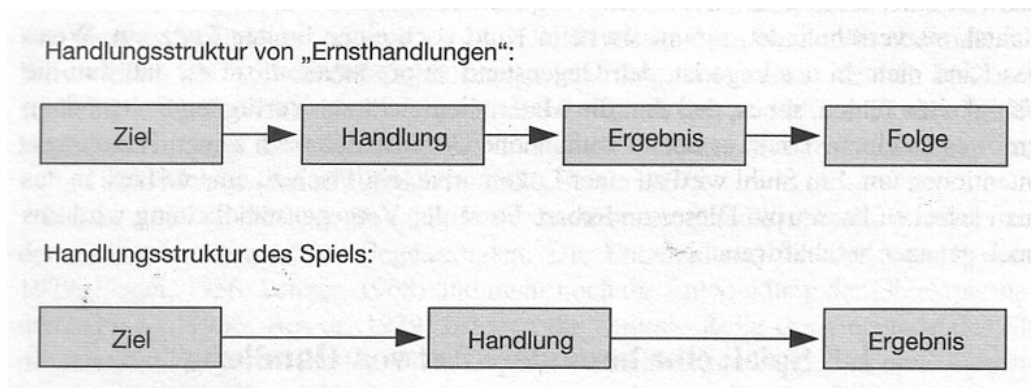
game design drama

herausforderung

- abhängig vom spieler (kontext, kotext)

- dynamisch: spiel muss sich adaptieren

- flow-theorie: optimales erlebnis als ergebnis des verhältnisses von herausforderung & können bzw. frustration & langeweile; flow entsteht im rahmen von folgender aktivitäten „goal-directed and bounded by rules ... that could not be done without the proper skills"

(mihaly czikszentmihalyi)

-verschmelzen von action/awareness -- klare ziele/feedback -- konzentration/kontrolle

- verlust von zeit- & eigenwahrnehmung

herausforderung

Handlungsstruktur von „Ernsthandlungen":

| Ziel | → | Handlung | → | Ergebnis | → | Folge |

Handlungsstruktur des Spiels:

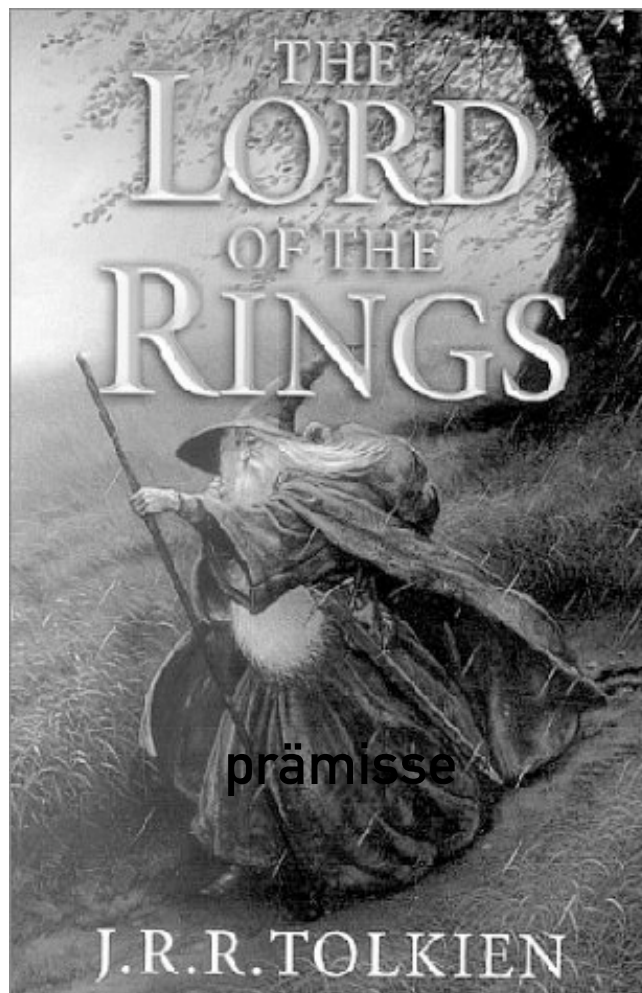| Ziel | → | Handlung | → | Ergebnis |

-> handlungserfahrung als selbstzweck!

spielen

spielen

- das potential zu spielen bewegt uns *emotional*

- spielertypen (wettbewerblerIn, abenteuererIn, sammlerIn, künstlerIn...)

prämisse

- dramatische voraussetzung für die spielinteraktion

- überlagert formale aspekte

-das erzählerische setting des spielraumes

prämisse

prämisse

prämisse: aufgaben

- reflexion von kontexten und kotexten -> *ethnographie*

- formales spiel spielbar machen für spieler

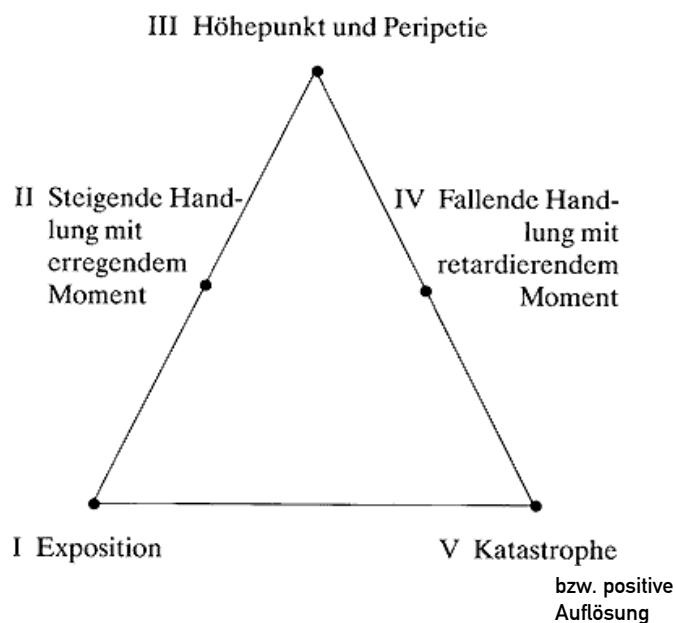- vereinheitlichen formaler & dramatischer elemente

figur(en)

- protagonist / antagonist

- major / minor

- charakterisierung(skomplexität): persönlichkeit,
veränderung über raum-zeit, sprache, habitus,
patterns of behavior, gestalt, fremdsichten (...)

story & dramatischer bogen

-in den meisten spielen nur hintergrundstory
-dramatische pyramide nach *g. freytag (1863)*

III Höhepunkt und Peripetie

II Steigende Hand-
lung mit
erregendem
Moment

IV Fallende Hand-
lung mit
retardierendem
Moment

I Exposition

V Katastrophe

bzw. positive
Auflösung

game design
# system

games als system

- def. *system*: eine menge interagierender elemente, die ein integriertes ganzes formen und einem gemeinsamen ziel/einer gemeinsamen aufgabe folgen

  - grundlegende systemelemente:
    1) objekte
    2) eigenschaften (properties)
    3) verhalten (behaviors)
    4) beziehungen

- die strukturierung der formalen und dramatischen elemente eines spieles sorgt für das spielsystem

games als system
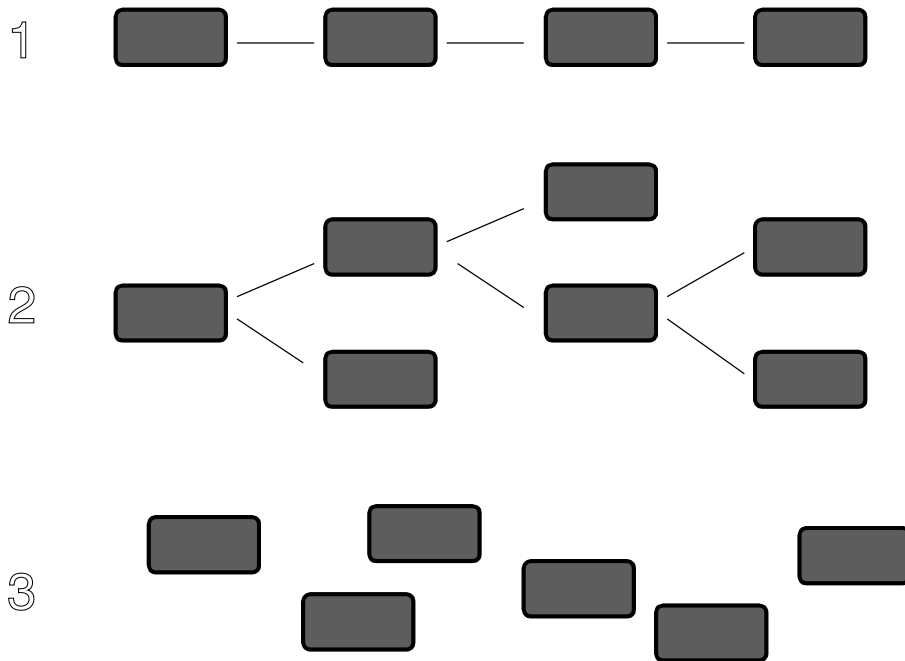
games als *interaktions*system

- welche information haben spielerInnen über den game state?
- welche aspekte des systems kontrollieren die spielerInnen?
- wie ist diese kontrolle strukturiert?
- auf welche weise wird welche form von feedback gegeben?
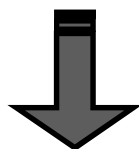
playability tests, tuning, tests, tuning, tests, beta

IN-GAME OBSERVATIONS

[Your thoughts as you watch the testers play.]

IN-GAME QUESTIONS

[Questions you ask the testers as they play.]

1. What did you feel as your turned ended?
2. Does the navigation seem confusing?
3. Why did you move to that location?
4. Why are you pausing there?

POST-GAME QUESTIONS

[Questions you ask the testers after they've played.]

General questions

1. What was your first impression?
2. How did that impression change as you played?
3. Was there anything you found frustrating?
4. Did the game drag at any point?
5. Were there particular aspects that you found satisfying?
6. What was the most exciting thing about the game?
7. Did the game feel too long, too short or just about right?

Formal elements

1. Describe the objective of the game.
2. Was the objective clear at all times?
3. What types of choices did you make during the game?
4. What was the most important decision you made?
5. What was your strategy for winning?
6. Did you find any loopholes in the system?
7. How would you describe the conflict?
8. In what way did you interact with other players?
9. Do you prefer to play alone or with human opponents?
10. What elements do you think could be improved?

Dramatic elements

1. Was the game's premise exciting?
2. Did the story enhance or detract from the game?
3. As you played, did the story evolve with the game?
4. Is this game appropriate for the target audience?
5. On a piece of paper, graph your emotional involvement over the course of the game.
6. Did you feel a sense of dramatic climax as the game progressed?
7. How would you make the story and game work better as a whole?

Procedures, rules, interface, and controls

1. Were the procedures and rules easy to understand?
2. How did the controls feel? Did they make sense?
3. Could you find the information you needed on the interface?
4. Was there anything about the interface you'd change?
5. Did anything feel clunky or awkward?
6. Are there any controls or interface features you'd like to see added?

End of session

1. Overall, how would you describe this game's appeal?
2. Would you purchase this game?
3. What elements of the game attracted you?
4. What was missing from the game?
5. If you could change just one thing, what would it be?
6. Who do you think is the target audience for this game?
7. If you were to give this game as a gift, who would you give it to?
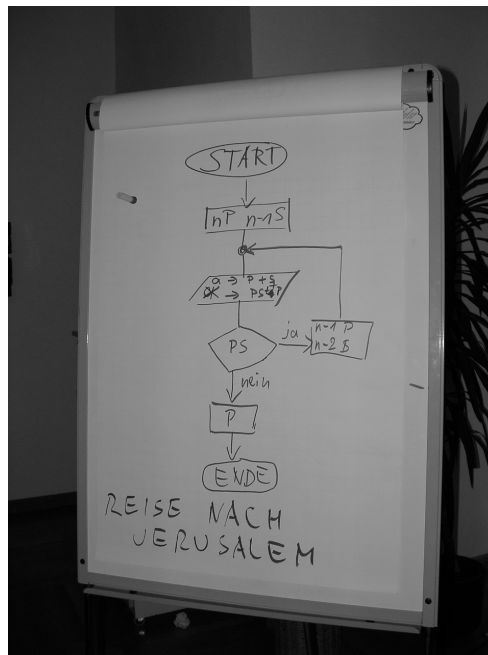
REVISION IDEAS

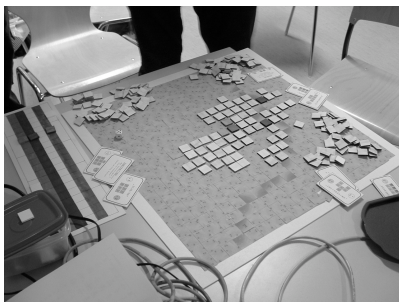[Ideas you have for improving the game.]

game design methoden

exemplarische prototyping-methoden
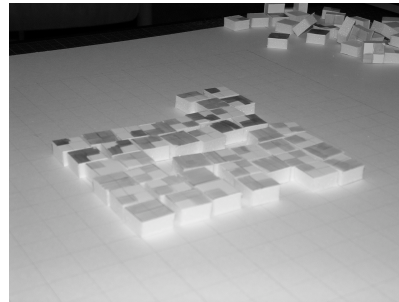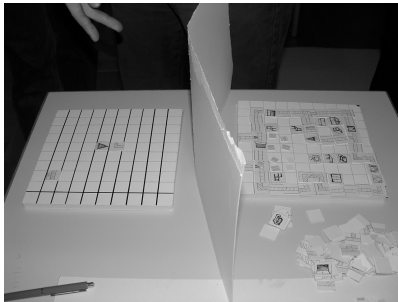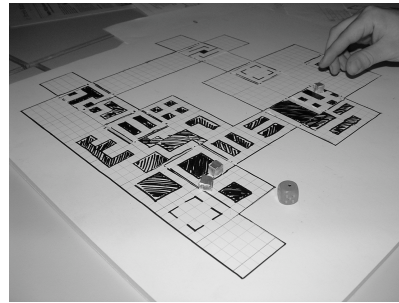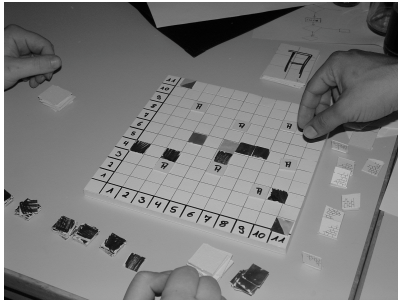
exemplarische prototyping-methoden

exemplarische prototyping-methoden

das design-dokument spezifiziert in wort, bild (z.b. storyboard, fake screenshots) und ablaufdiagrammen das spiel bzw. zunächst den spielprototypen funktional und technologisch. das DD wird ständig iteriert.

game design übung

game design übung

- einigt euch in dreiergruppen auf je ein kinderspiel und übersetzt dieses in max. 10min in ein ablaufdiagramm; bedenkt dabei folgendes:
  - definition der spielerInnen-hauptziele
  - was muss spielerIn machen, um zu gewinnen?
  - festhalten der *wichtigsten* spielerIn-handlung inkl. funktionalitätsbeschreibung
  - definition der *kritischen* regeln und prozeduren
  - wie viele spielerInnen können spielen?
  - wie interagieren diese spielerInnen miteinander?
  - das ablaufdiagramm beschreibt auf abstrakte weise start, ende und die kernmechanik, d.h. einen typischen zug bzw. eine typische runde
- präsentiert dem forum in max. 5 min euer ablaufdiagramm

übung bis übernächste woche

- denkt euch in euren gruppen einen konflikt aus
- stellt bezüge her zwischen diesem konflikt und euren psych. lösungsmodellen
- überlegt, auf welche weise ihr den konflikt mit hilfe eines spieles formal, dramaturgisch und systemisch lösen könntet
- produziert auf basis einer konkreten spielidee ein ablaufdiagramm sowie einen pen & paper-prototypen des spieles
- spielt euer spiel, lasst es spielen, sammelt kommentare und verbessert
- stellt euren prototypen spielend dem forum vor

serious game design: inspirationen

"Content"	Examples	Learning activities	Possible Game Styles
Facts	Laws, policies, product specifications	questions memorization association drill	game show competitions flashcard type games mnemonics action, sports games
Skills	Interviewing, teaching, selling, running a machine, project management	Imitation Feedback coaching continuous practice increasing challenge	Persistent state games Role-play games Adventure games Detective games
Judgment	Management decisions, timing, ethics, hiring	Reviewing cases asking questions making choices (practice) feedback coaching	Role play games Detective games Multiplayer interaction Adventure games Strategy games
Behaviors	Supervision, self-control, setting examples	Imitation Feedback coaching practice	Role playing games
Theories	Marketing rationales, how people learn	Logic Experimentation questioning	Open ended simulation games Building games Constructing games Reality testing games
Reasoning	Strategic and tactical thinking, quality analysis	problems examples	Puzzles
Process	Auditing, strategy creation	System analysis and deconstruction Practice	Strategy games Adventure games
Procedures	Assembly, bank teller, legal	imitation practice	Timed games Reflex games
Creativity	Invention, Product design	play	Puzzles Invention games
Language	Acronyms, foreign languages, business or professional jargon	Imitation Continuous practice immersion	Role playing games Reflex games Flashcard games
Systems	Health care, markets, refineries	Understanding principles Graduated tasks Playing in microworlds	Simulation games
Observation	Moods, morale, inefficiencies, problems	Observing Feedback	Concentration games Adventure games
Communication	Appropriate language, timing, involvement	Imitation Practice	Role playing games Reflex games

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