René Barth
Benjamin Eugster

Eduhub Days 2022

Game-based Learning Design

A project-based approach

15.02.2022

D-3 Deutsch Didaktik Digital

MARTIN-LUTHER-UNIVERSITÄT
HALLE-WITTENBERG

DIKOLA

GAME-BASED LEARNING DESIGN

- Four perspectives on video games in education
- On the project seminar: From concepts to products
  - Changing the focus …
  - … means changing the structure
- Theoretical-methodical approaches: Instructional Design, Gamification and Storytelling
- Check it out: Some examples of our students‘ work
- Discussion: How to teach and use the full potential of digital games in education

GAME-BASED LEARNING DESIGN

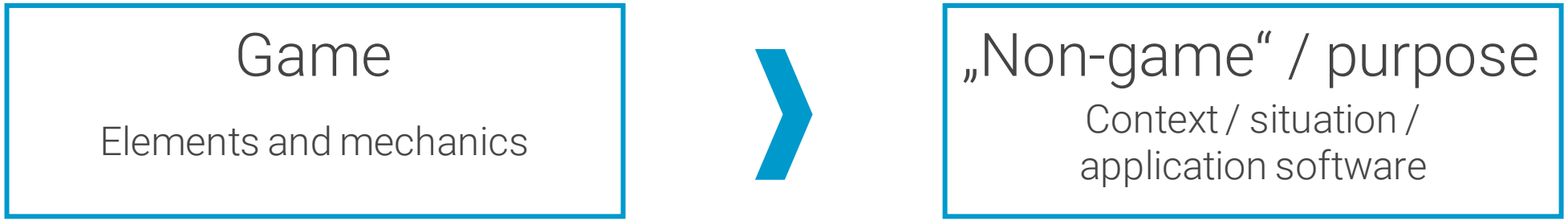
Four perspectives on video games in education

Motivator

GAME-BASED LEARNING DESIGN

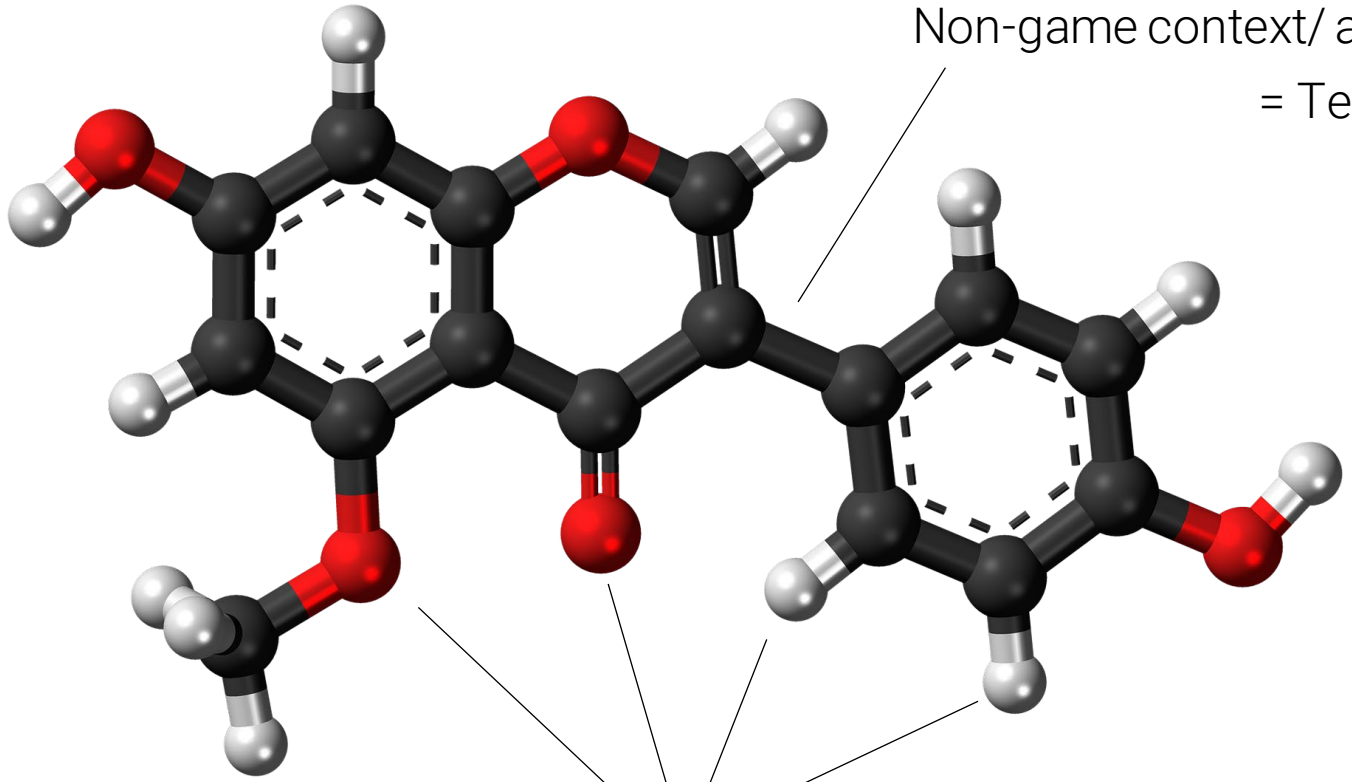
Four perspectives on video games in education: MOTIVATOR

Gamification



GAME-BASED LEARNING DESIGN

Gameful framing through game elements



Non-game context/ application

= Teaching-learning situation

Game elements

GAME-BASED LEARNING DESIGN

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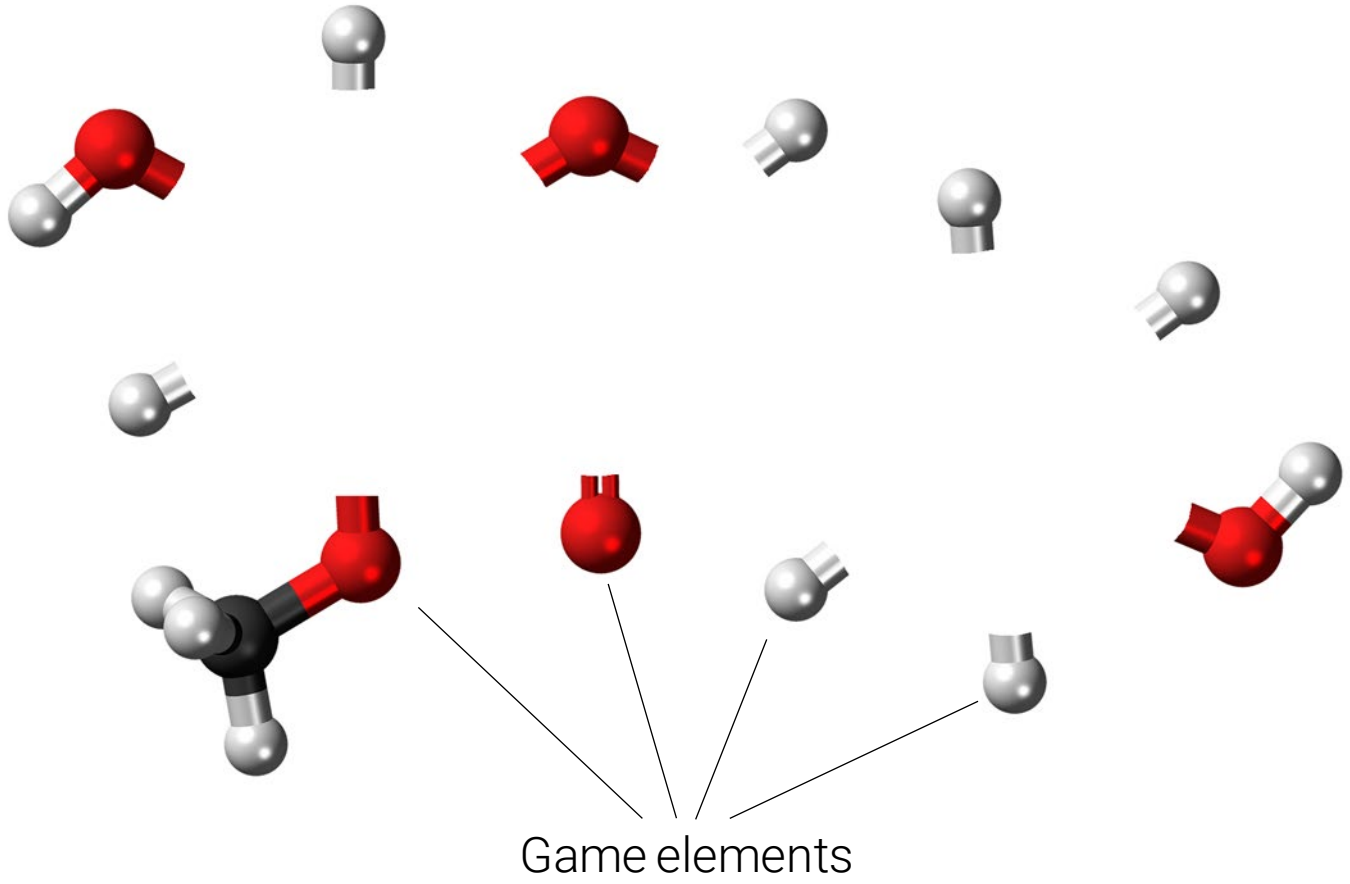

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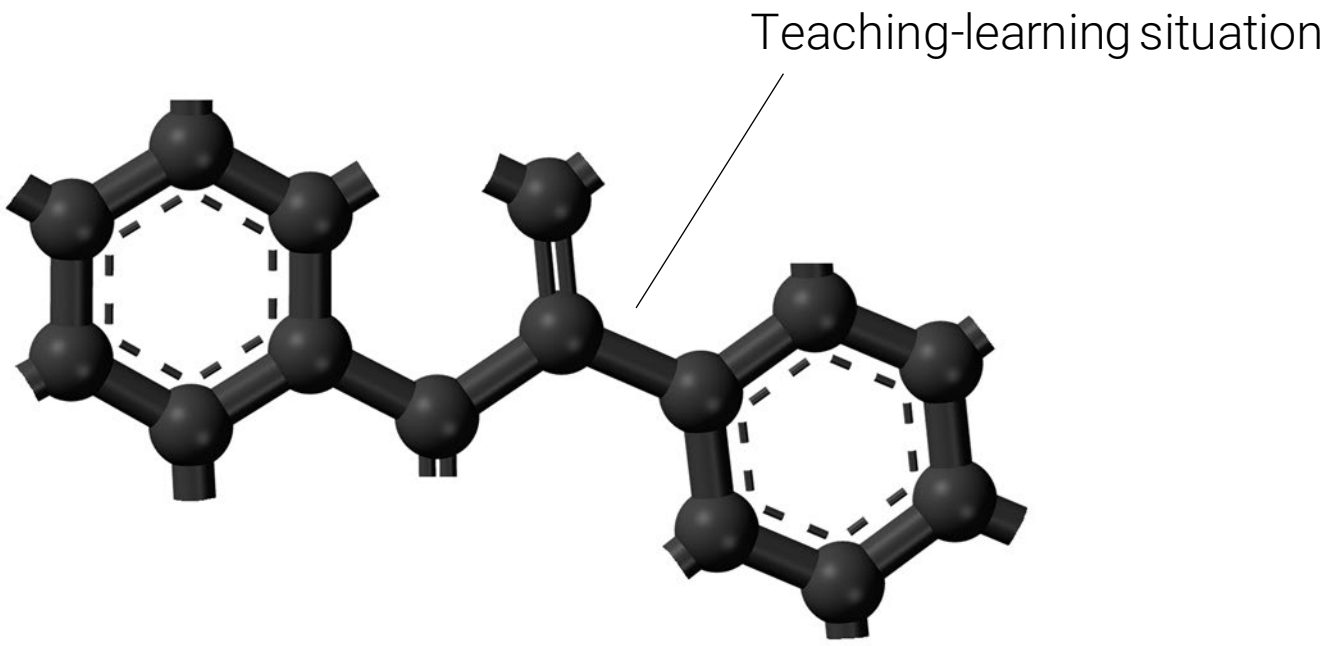

GAME-BASED LEARNING DESIGN

Where Gamification comes into play

Crowdsourcing

Advertising / Marketing

Education

Healthcare and medicine

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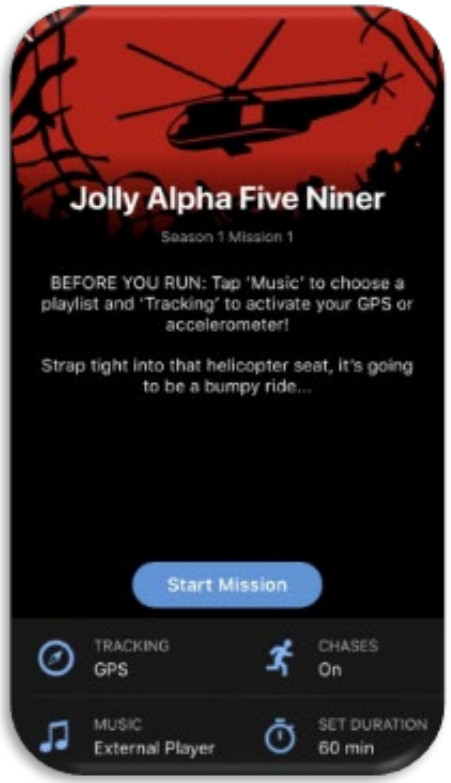
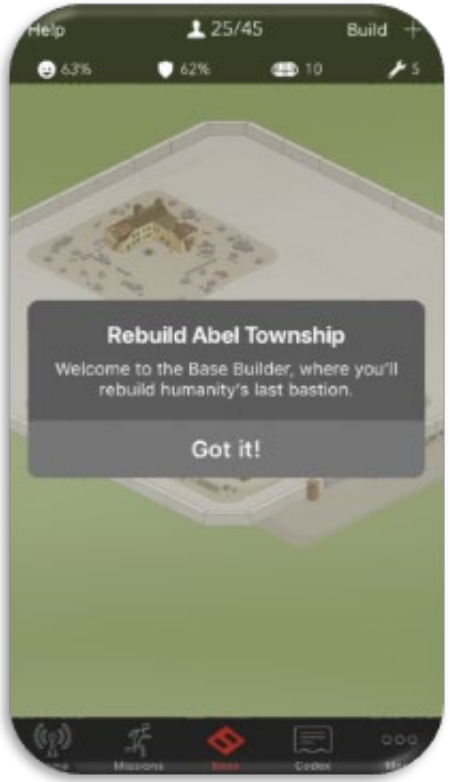
GAME-BASED LEARNING DESIGN

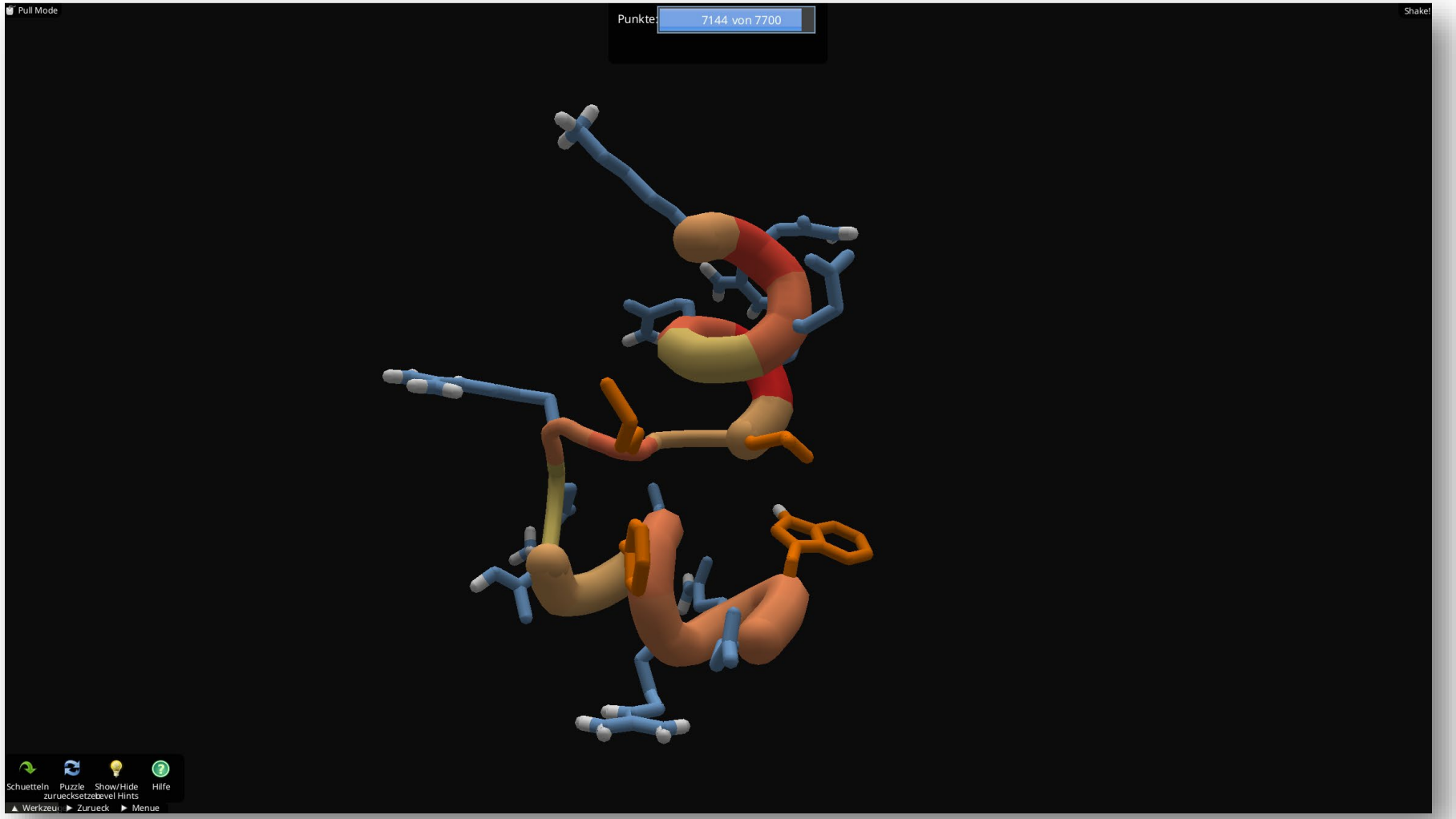
Example 1: *Zombies, Run!* (Six to Start, ninefeet 2012)





GAME-BASED LEARNING DESIGN

Example 2: *Foldit* (University of Washington 2008)

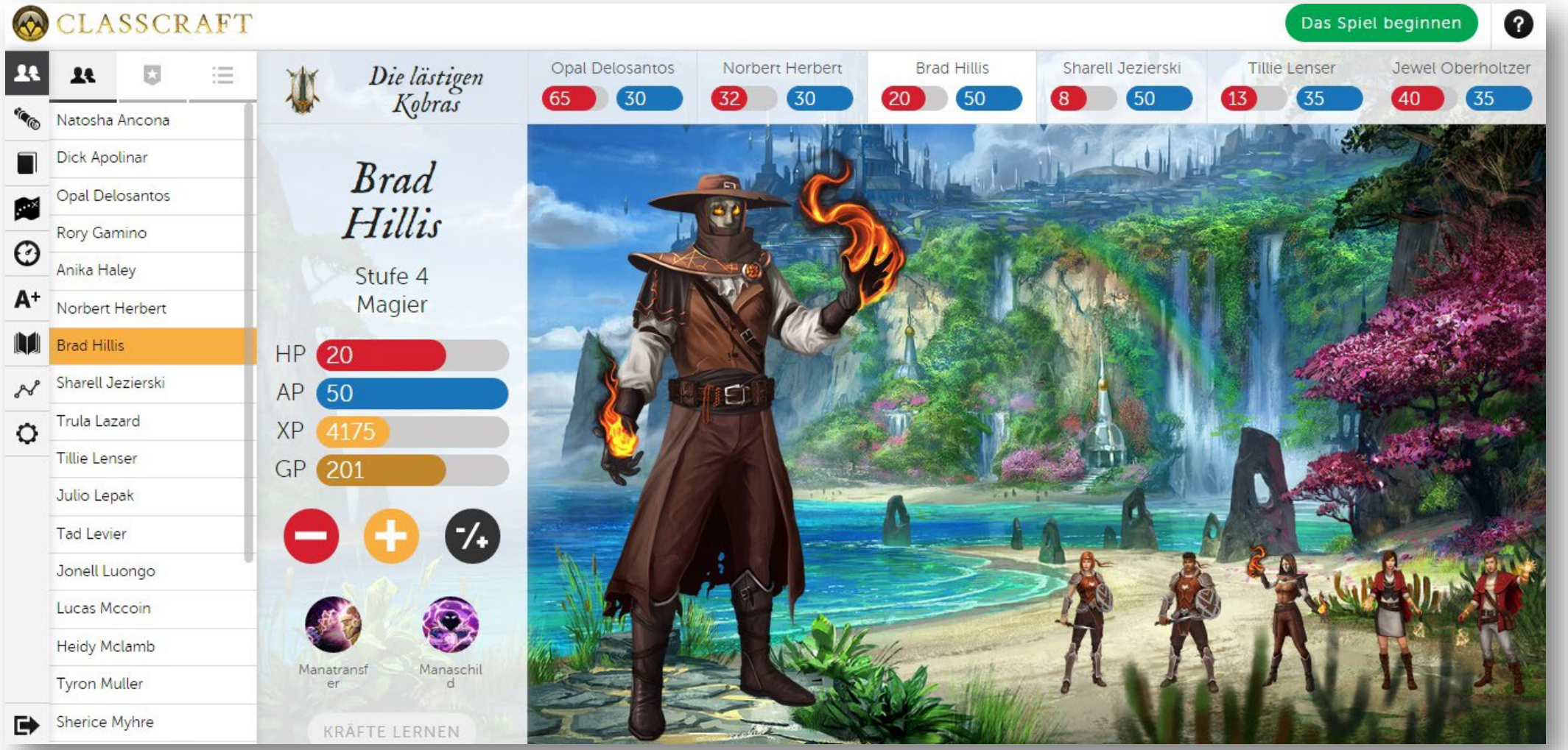


GAME-BASED LEARNING DESIGN

Example 3: *Duolingo* (Duolingo 2012)

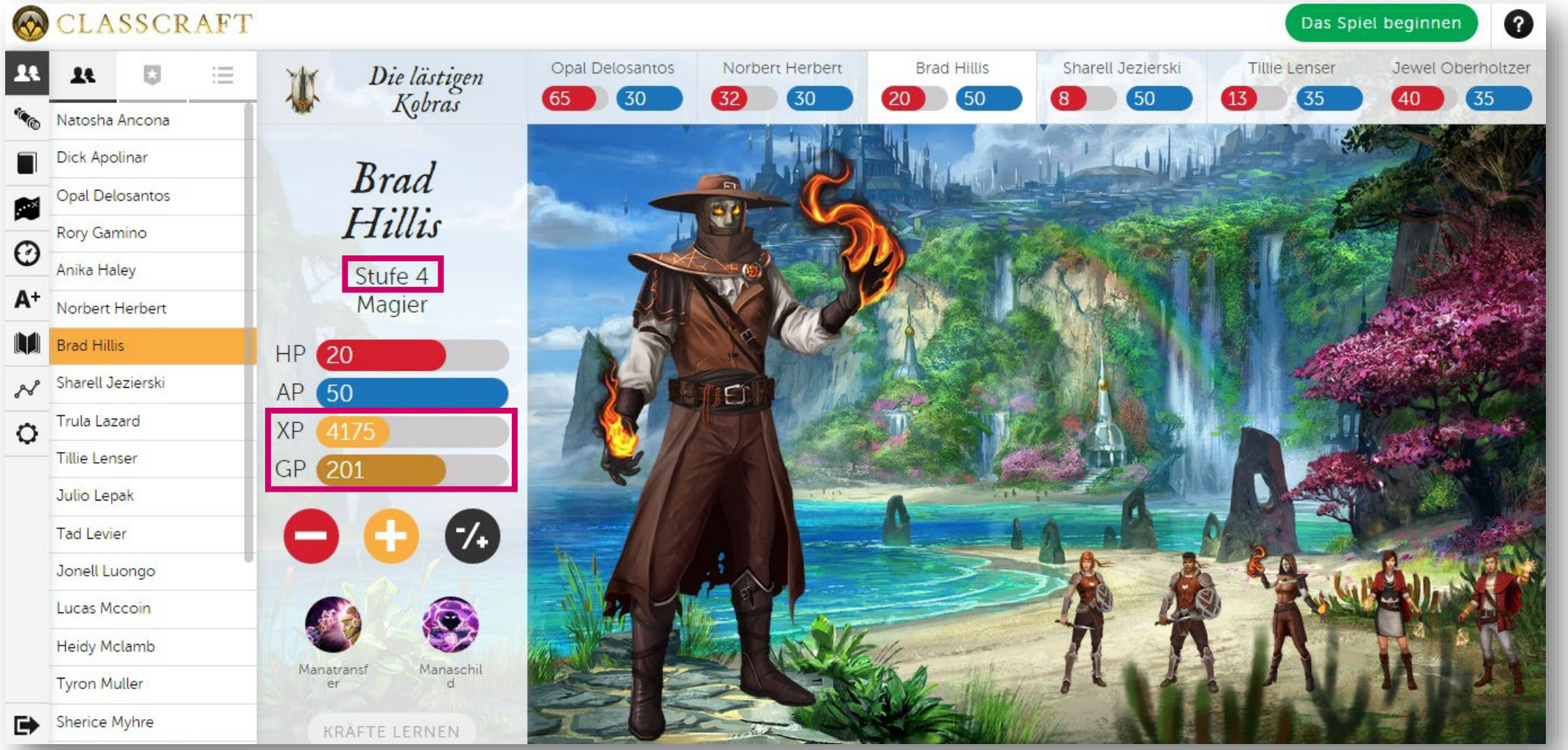
GAME-BASED LEARNING DESIGN

Example 4: *Classcraft* (Classcraft Studios 2013)



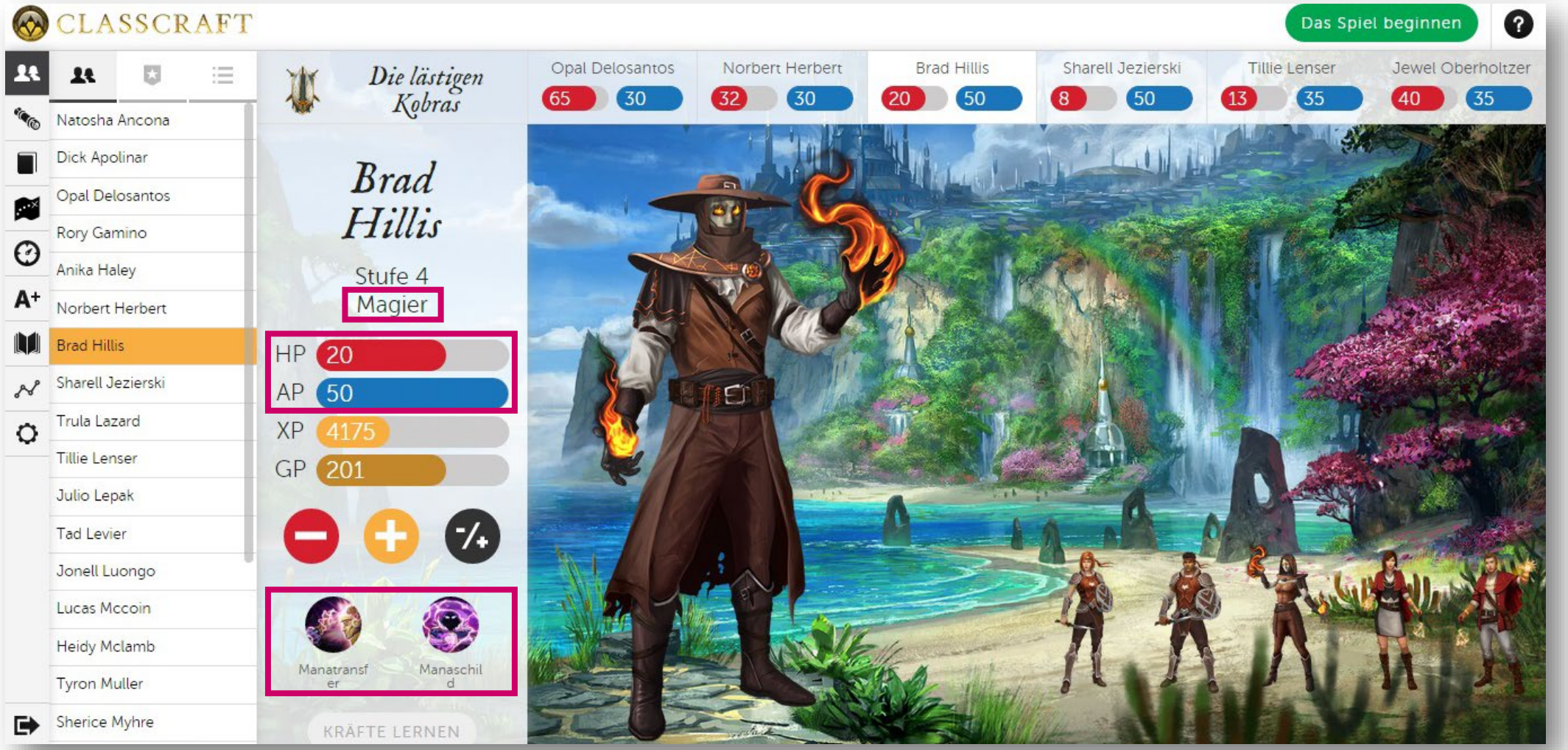
GAME-BASED LEARNING DESIGN

Example 4: *Classcraft* (Classcraft Studios 2013)



GAME-BASED LEARNING DESIGN

Example 4: *Classcraft* (Classcraft Studios 2013)



GAME-BASED LEARNING DESIGN

Four perspectives on video games in education

Motivator

Carrier

GAME-BASED LEARNING DESIGN

Four perspectives on video games in education : CARRIER

Serious Games (a.o.)

„Non-game“ / Purpose

(Learning) Content

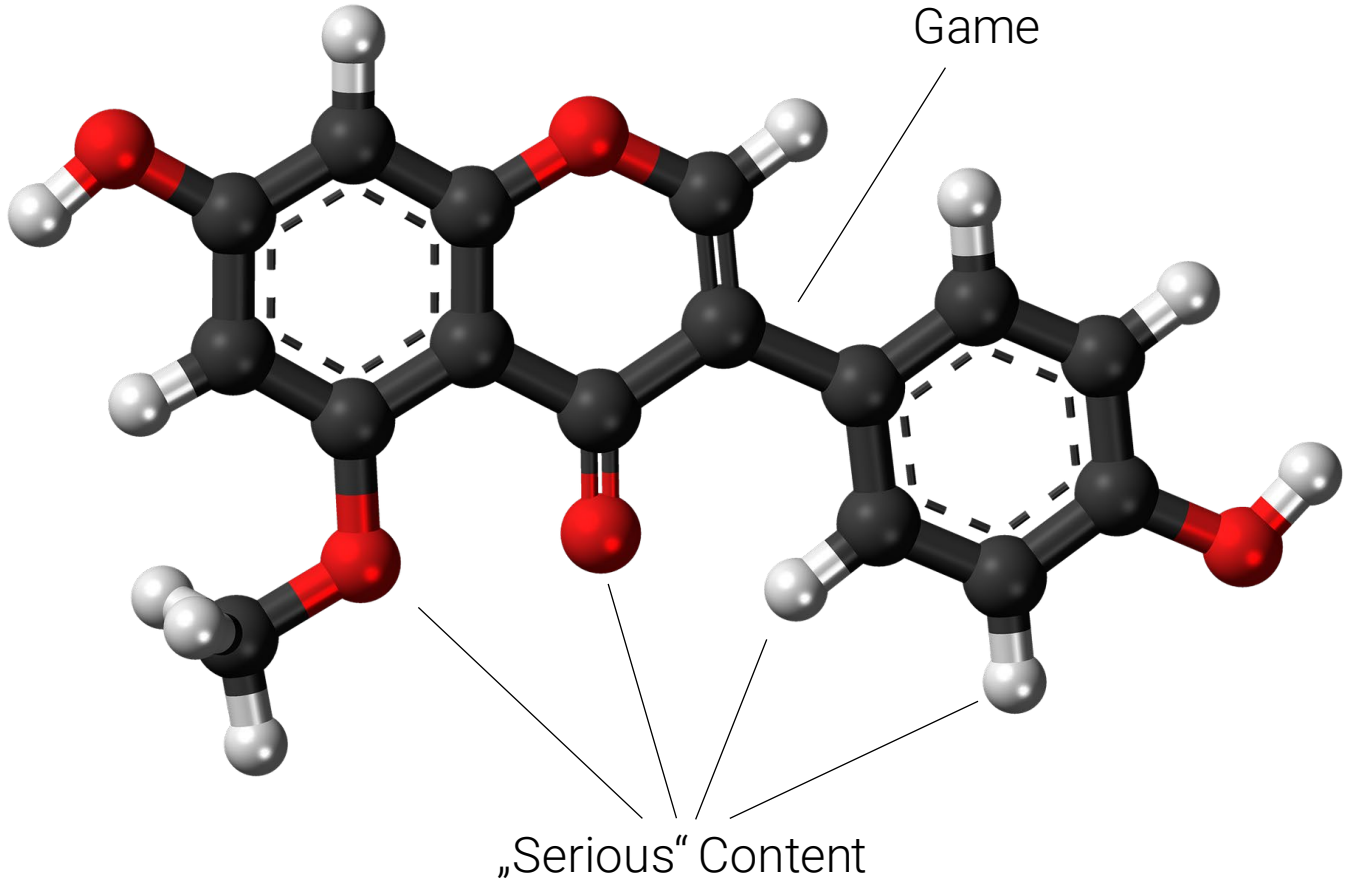
›

Game

Game structure

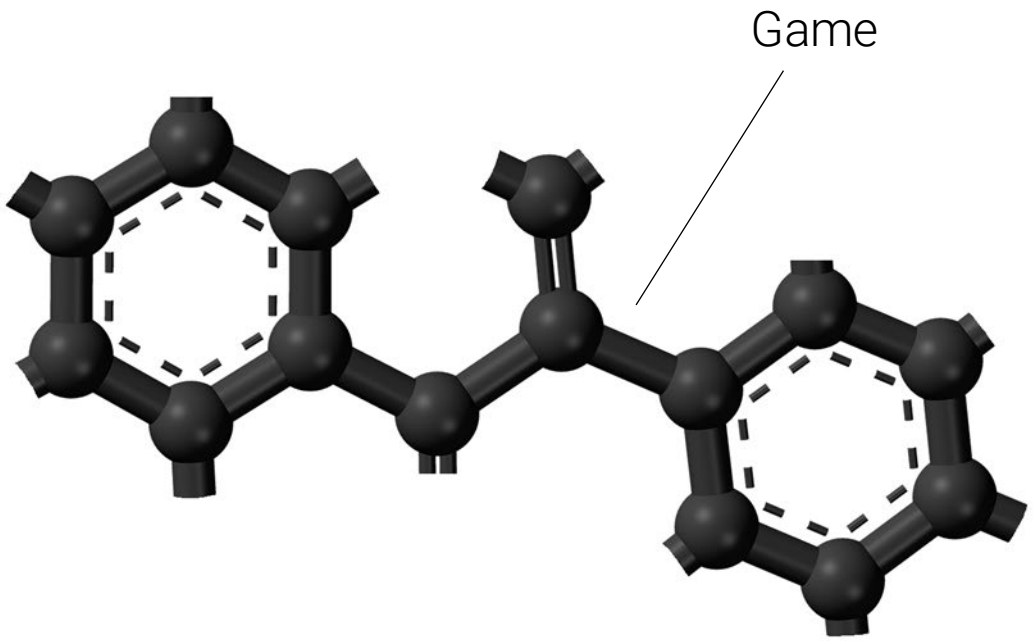
GAME-BASED LEARNING DESIGN

„Enrichment“ of complete game frameworks



GAME-BASED LEARNING DESIGN

„Enrichment“ of complete game frameworks



GAME-BASED LEARNING DESIGN

Examples for Serious Games

GAME-BASED LEARNING DESIGN

Modifications and gray areas

Modifications of commercial games

- Assassin‘s Creed Origins (Ubisoft 2017) → Assassin‘s Creed Discovery Tour: Ancient Egypt (2018)
- → Assassin‘s Creed Discovery Tour: Ancient Greece (2019) / Viking Age (2021)
- Minecraft (Mojang Studios 2009) → Minecraft Education (2016)

Entertainment or Serious Games?

- Valiant Hearts: The Great War (Ubisoft 2014)
- Through the Darkest of Times (Paintbucket Games 2020)
- Metamorphosis (Ovid Works 2020)

GAME-BASED LEARNING DESIGN

Four perspectives on video games in education

Motivator

Subject matter

Carrier

GAME-BASED LEARNING DESIGN

Four perspectives on video games in education : SUBJECT MATTER

- Games as „literature“
- How do games narrate?
- (Inter-)Action vs. storytelling
- Narration vs. experience
- Conclusions about literature

➢ Similarly conceivable for the subjects music and art

GAME-BASED LEARNING DESIGN

Four perspectives on video games in education

Motivator

Subject matter

Carrier

Occasion

GAME-BASED LEARNING DESIGN

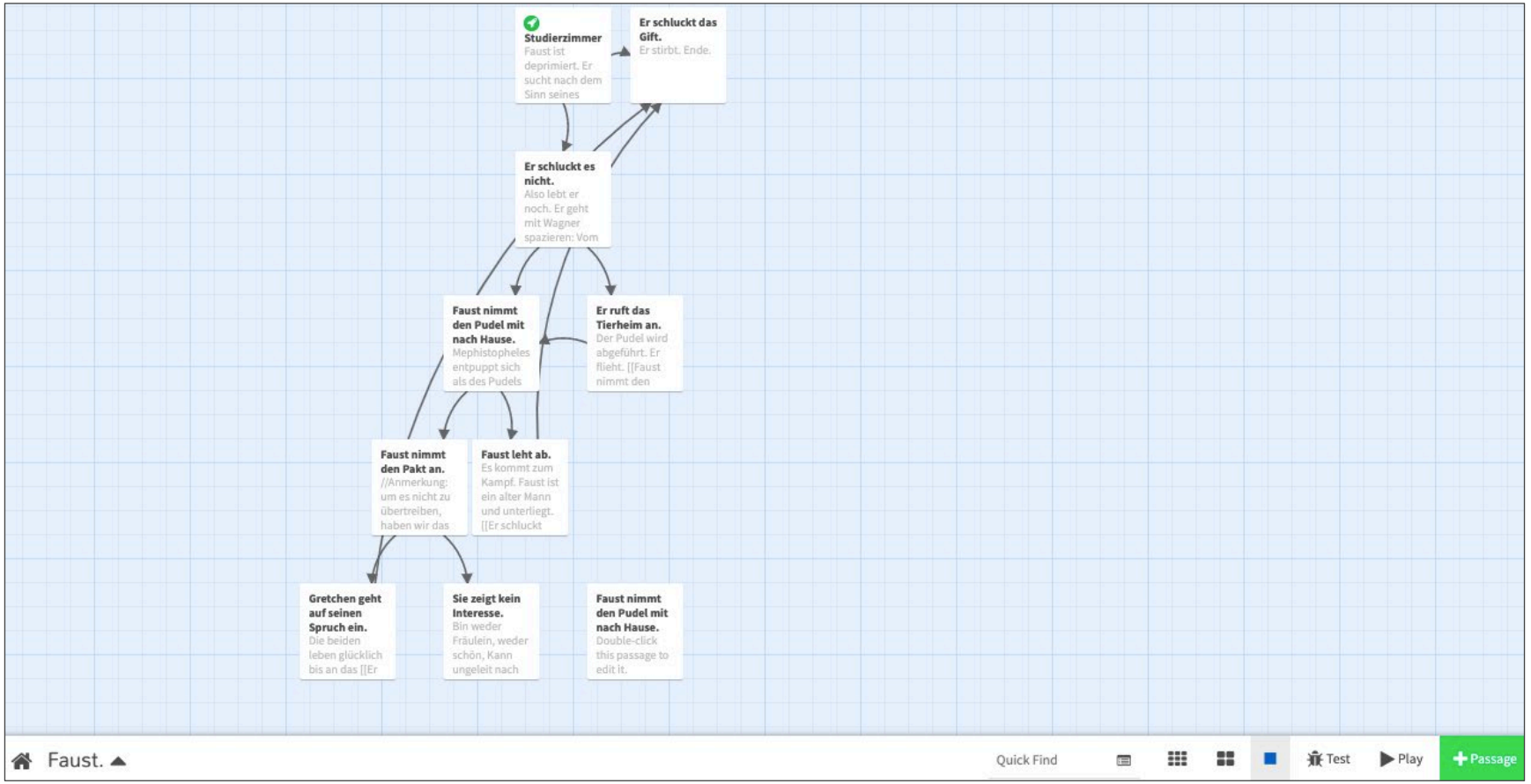
Four perspectives on video games in education: OCCASION

My best gaming experience

HPU

GAME-BASED LEARNING DESIGN

Interactive fiction with *Twine*



Twine (Chris Klimas, 2009)

GAME-BASED LEARNING DESIGN

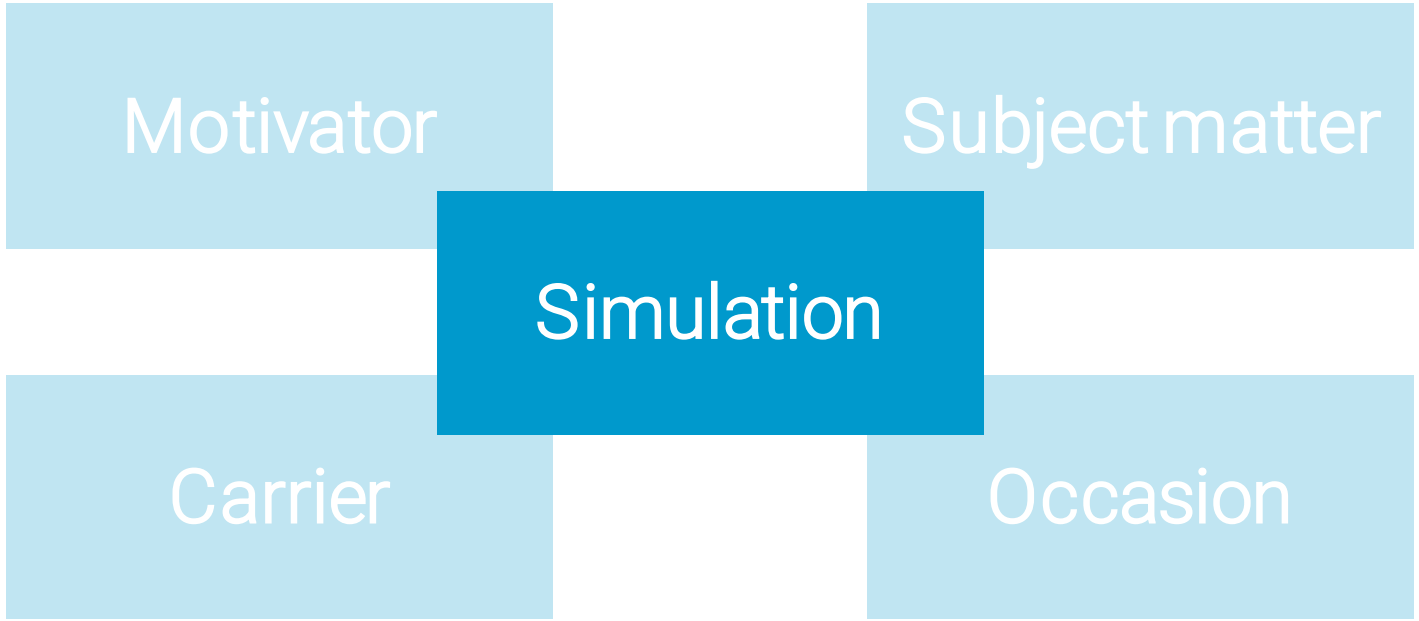
Minetest as a free *Minecraft* alternative

GAME-BASED LEARNING DESIGN

Minetest as a free *Minecraft* alternative

GAME-BASED LEARNING DESIGN

Four perspectives on video games in education?



GAME-BASED LEARNING DESIGN

Four perspectives on video games in education?

GAME-BASED LEARNING DESIGN

Four perspectives on video games in education

Motivator

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Occasion

GAME-BASED LEARNING DESIGN

On the project seminar: From concepts to products

Summer semester 2020

On the didactics of video games:
Digitale games as learning occasion, carrier, motivation and subject matter in German lessons

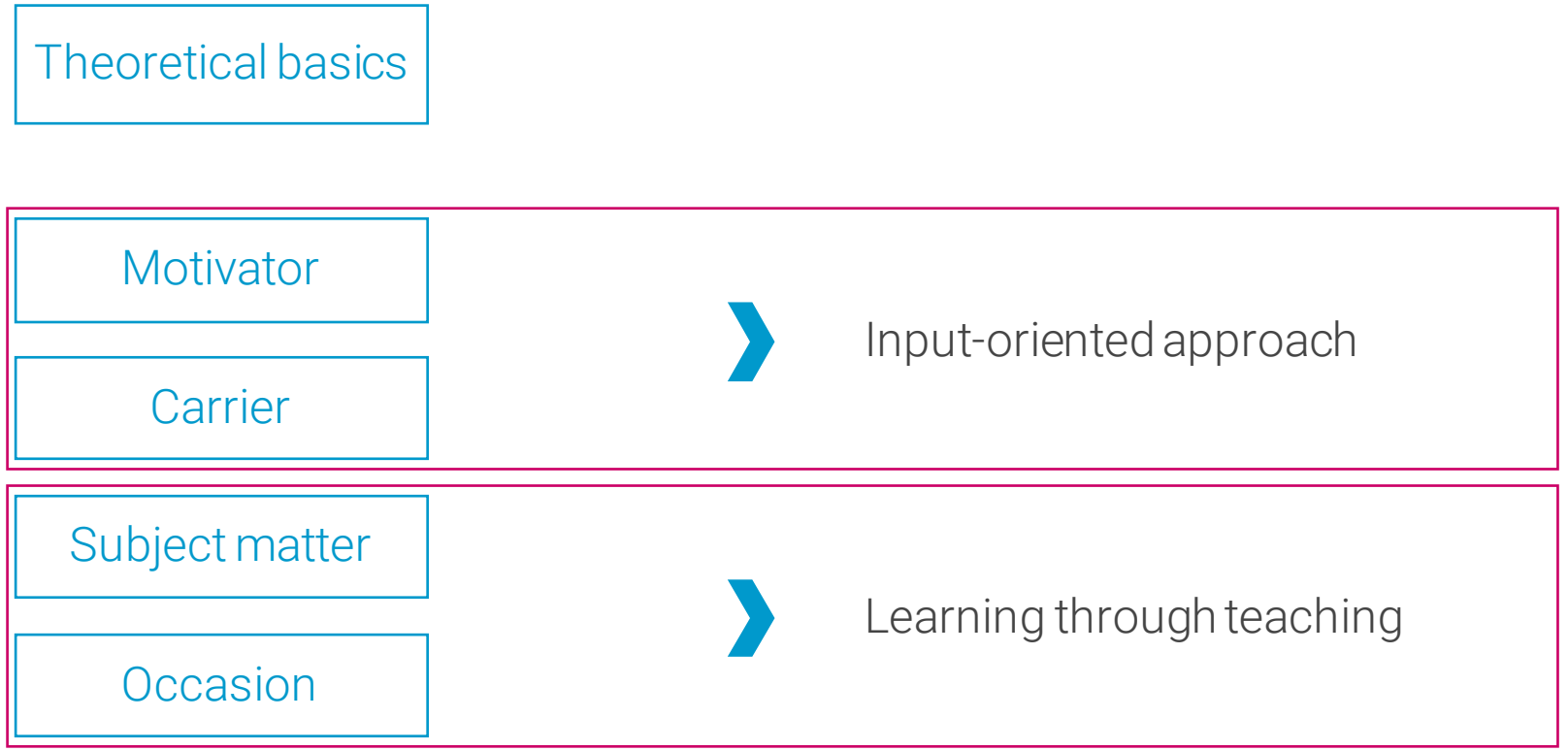
- 5th semester and above
- Teaching students of all school types except elementary school

Dr. Gunhild Berg, Institute of German Studies
René Barth, DIKOLA

GAME-BASED LEARNING DESIGN

Summer semester 2020: On the didactics of video games

Course structure



GAME-BASED LEARNING DESIGN

Changing the focus

Motivator

Carrier

Products

Subject matter

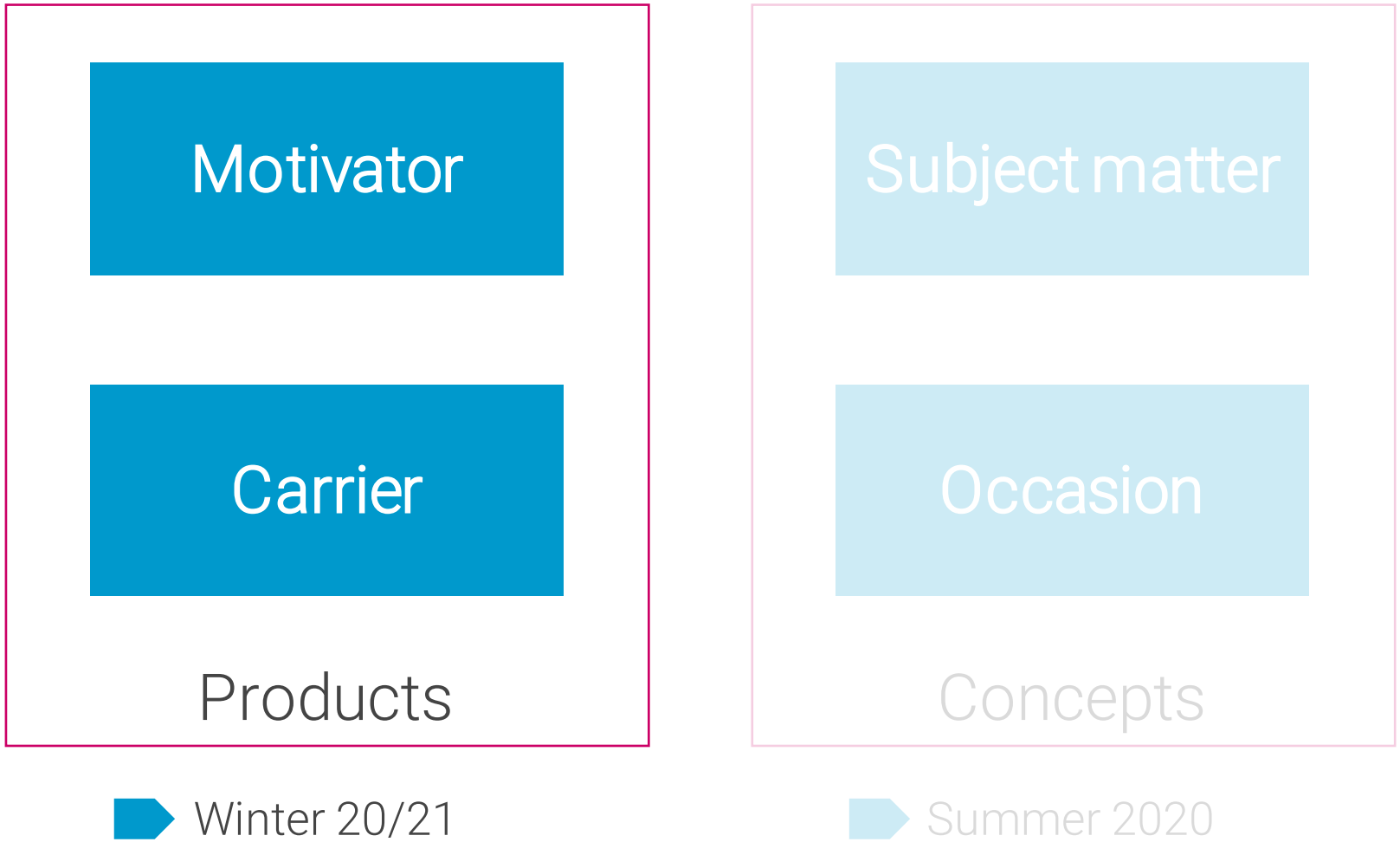
Occasion

Concepts

Summer 2020

GAME-BASED LEARNING DESIGN

Changing the focus



GAME-BASED LEARNING DESIGN

Winter semester 2020/2021: Making learning gameful

Winter semester 2020/2021

Making learning gameful:
Project seminar on game-based learning in schools and universities

- 5th semester and above
- Teaching students of all school types except elementary school

Dr. Gunhild Berg, Institute of German Studies
René Barth, DIKOLA
Benjamin Eugster, D-3

GAME-BASED LEARNING DESIGN

Changing the structure

Task: Development of a gameful teaching-learning product

Specifications:

- Product must be playable; prototype will do, gold status not necessary
- Clear reference to learning process
- Gameful/ ludic design
- Orientation to the contents of German lessons (curriculum)

Liberties:

- School type
- Grade
- Topic
- Learning objectives and content
- Format
- Design
- Software

Possible formats:

- Interactive learning content
- Management game
- Board game
- Card game
- Roleplay game
- Gamification concept
- …

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MUCH FREEDOM
LITTLE TIME

Possible formats:

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GAME-BASED LEARNING DESIGN

New structure in winter 21/22

GAME-BASED LEARNING DESIGN

New structure in winter 21/22

Theory

- Basics of (a) learning, media an motivation psychology, basic knowledge of (b) game-based learning (incl. gamification and serious games) as well as (c) the didactic use of digital games in teaching and (d) instructional design

Concept

- [D-3] Workshop: Creating interactive gameful learning content in H5P
- Game Thinking Workshop using the *Player Journey* by *Pfeffermind*

Development

- Presentation of concrete ideas
- Individual support and obligatory consultations for all groups (2 meetings)

Evaluation

- Presentation to external jury
- Peer-Feedback

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MUCH CONTENT

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GAME-BASED LEARNING DESIGN

Theoretical basics as mini-project

Challenge

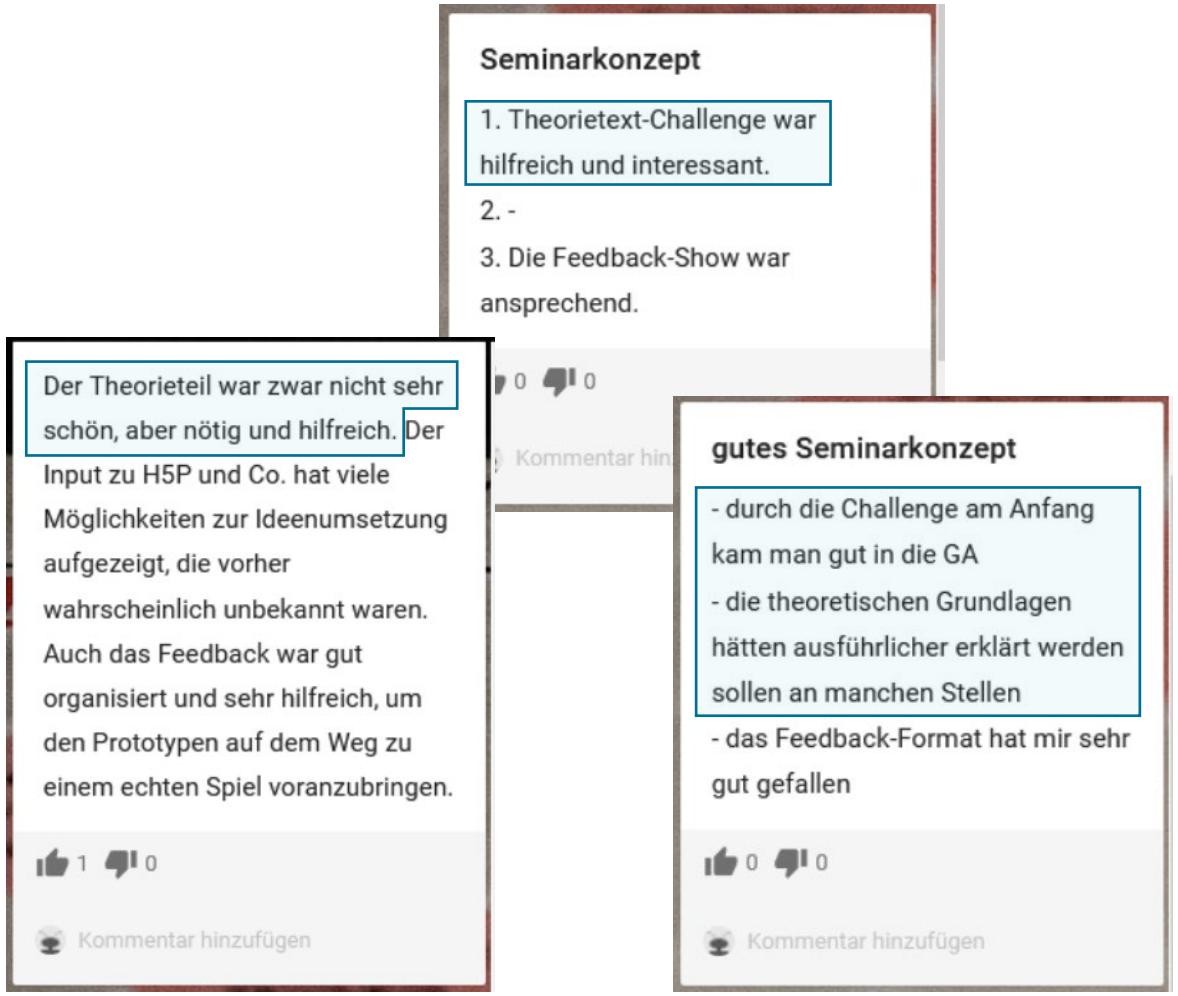
- Organization und coordination of the reading and writing tasks under pressure

Obvious goal

- Acquisition of basic theoretical knowledge

Hidden goals

- Getting to know group members and dynamics
- Reflection on work phases and processes
- Celebration of first successes
- Clarifying the effort



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GAME-BASED LEARNING DESIGN

Accompanied development phase

General conditions

- Only 3 obligatory meetings
  - Presentation of ideas (raw concept)
  - Consultations on 2 dates
- Rest of the time freely available
- Support on demand („Startup aid“, detailed questions)

GAME-BASED LEARNING DESIGN

New structure in winter 21/22

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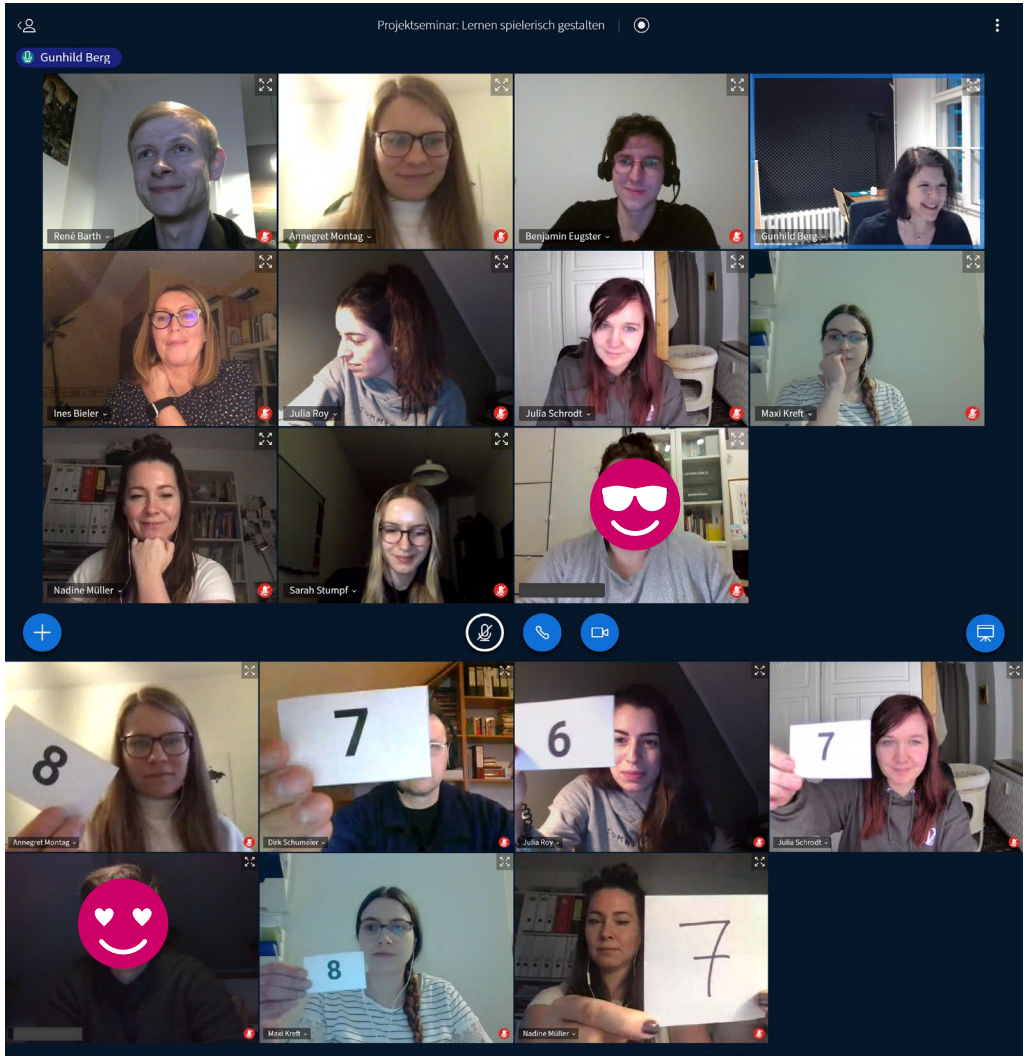
GAME-BASED LEARNING DESIGN

Jury Session

- External feedback from experts from different stages of teacher education (university, preparatory service, schools)
- Access to all games for all jury members
- Detailed feedback for one game per jury member
- Followed by feedback round and scoring
- Award ceremony and special prizes at the end



GAME-BASED LEARNING DESIGN

Winter semester 2021/2022: Game-based Learning

Winter semester 2021/2022

Game-based learning:
Promoting learning though games with didactic media products

Dr. Gunhild Berg, Institute of German Studies
René Barth, DIKOLA
Benjamin Eugster, D-3

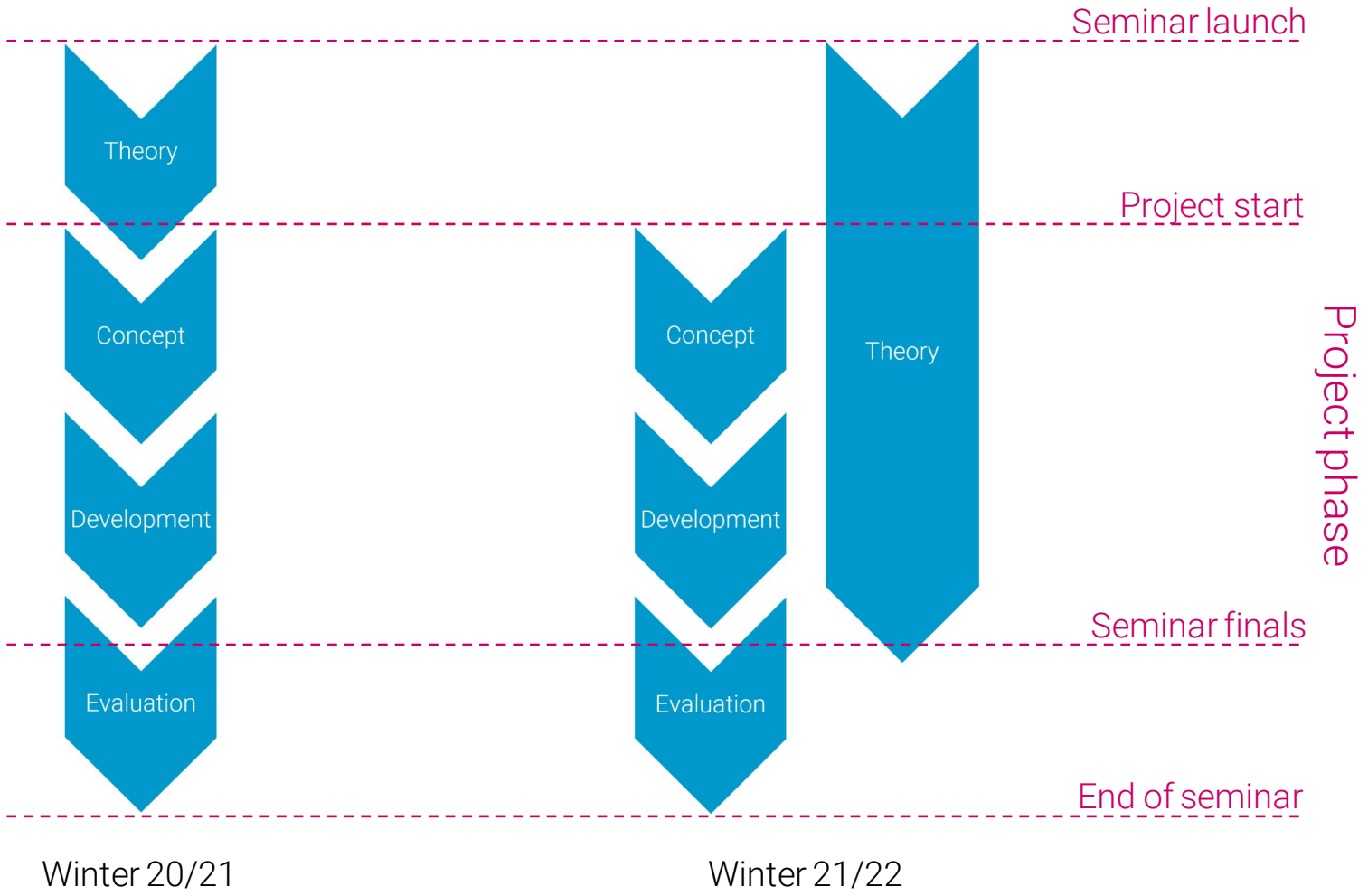
- Supplementary study program ‚media education'
- Teaching students of all school types

Advantages:

- 10 CP instead of 5
- Media product is core component
- All school subjects = more diversity

GAME-BASED LEARNING DESIGN

New structure in winter 21/22



GAME-BASED LEARNING DESIGN

New structure in winter 21/22

GAME-BASED LEARNING DESIGN

Theoretical-methodical approaches

Instructional design
→ Learning objectives

Storytelling
→ Structure and entertainment

Gamification
→ Interaction and engagement

GAME-BASED LEARNING DESIGN

Challenges of instructional design

- Designing teaching and learning content beyond given structures of conventional digital learning environments
- Making the shift from ‚sugarcoating' learning content with gameful elements to developing scenarios that require the development and use of skills and competences

GAME-BASED LEARNING DESIGN

Challenges of gamification

- Developing meaningful modes of engagement, gratification and learning progress beyond ‚pointsification‘
- Framing teaching-learning situations through flexible game mechanics without restricting students‘ choices and actions

GAME-BASED LEARNING DESIGN

Challenges of storytelling

- Balancing entertainment and information in a well-structured and connected way
- Developing meaningful modes of interaction and learning progress by means of relatable narration and plausible goals

GAME-BASED LEARNING DESIGN

Student projects

Faust I – The Game
Board game on Goethes *Faust. Der Tragödie erster Teil*

Leseabenteuer mit Pippi
Moodle-based online course with progression mechanics

Story Book
Powerpoint adventure on the topic of fairy tales

Grammatical Journey
Escape game with ortho-graphy questions in H5P

Ein Tag im Büro
Assessment of application letters in Minecraft

Die kleine Märchenreise
Adventure on the topic of fairy tales in H5P

Deutschlandreise mit Hugo
Board game mixed with H5P mini games on topography

Klaus: The Game
GB Studio puzzle game on the Netflix film *Klaus*

Robinson Crusoe
Exploration game built with Minetest on *Robinson Crusoe*

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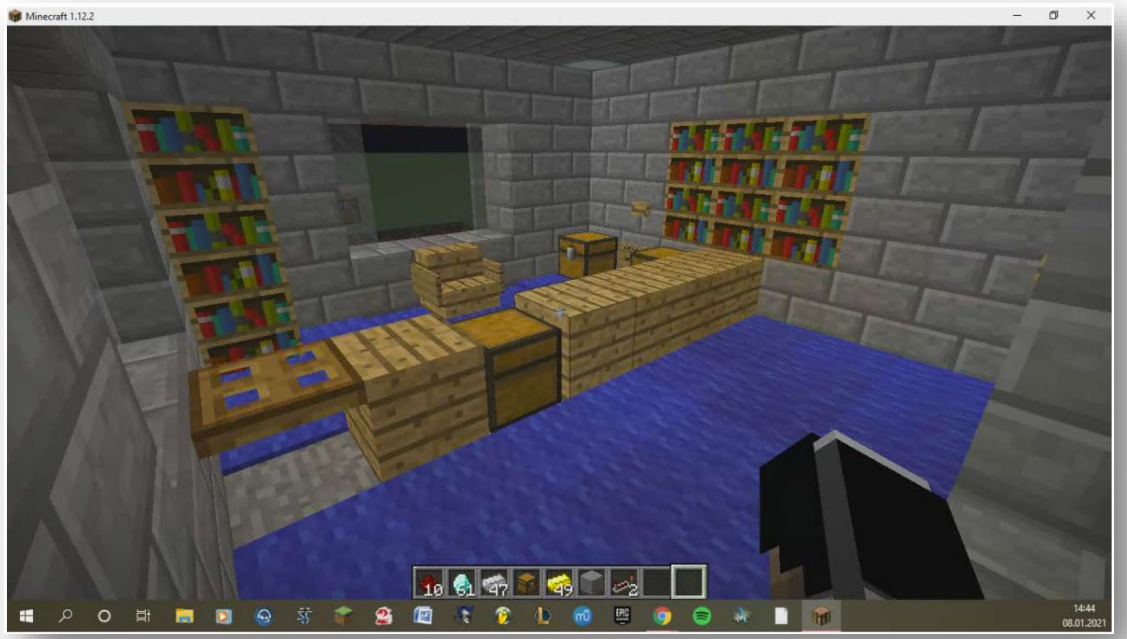
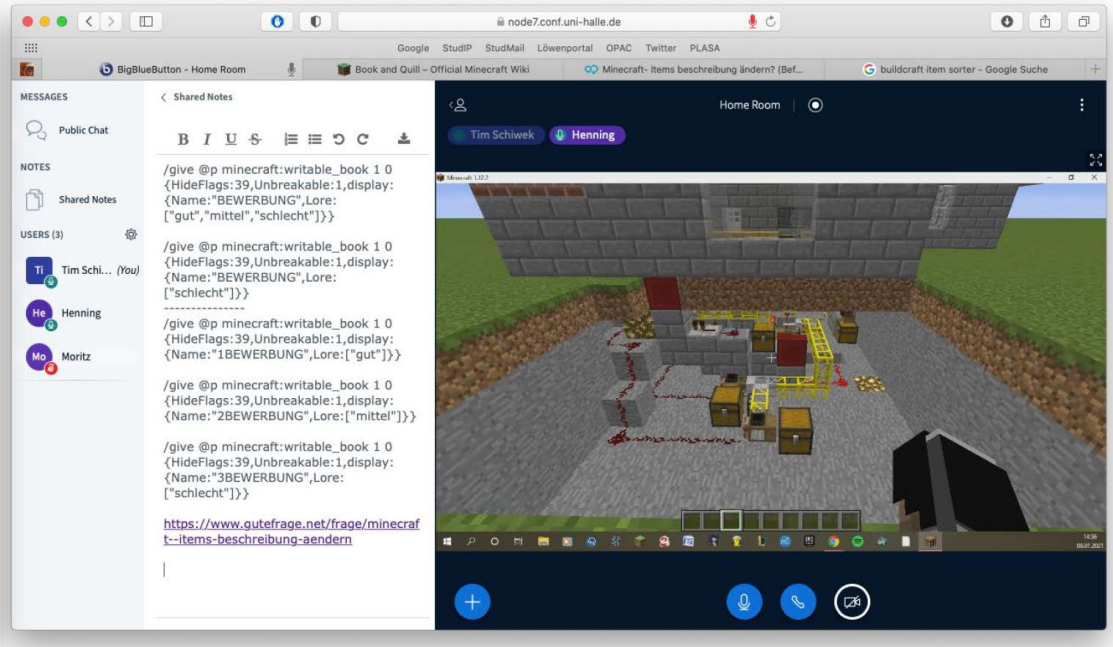
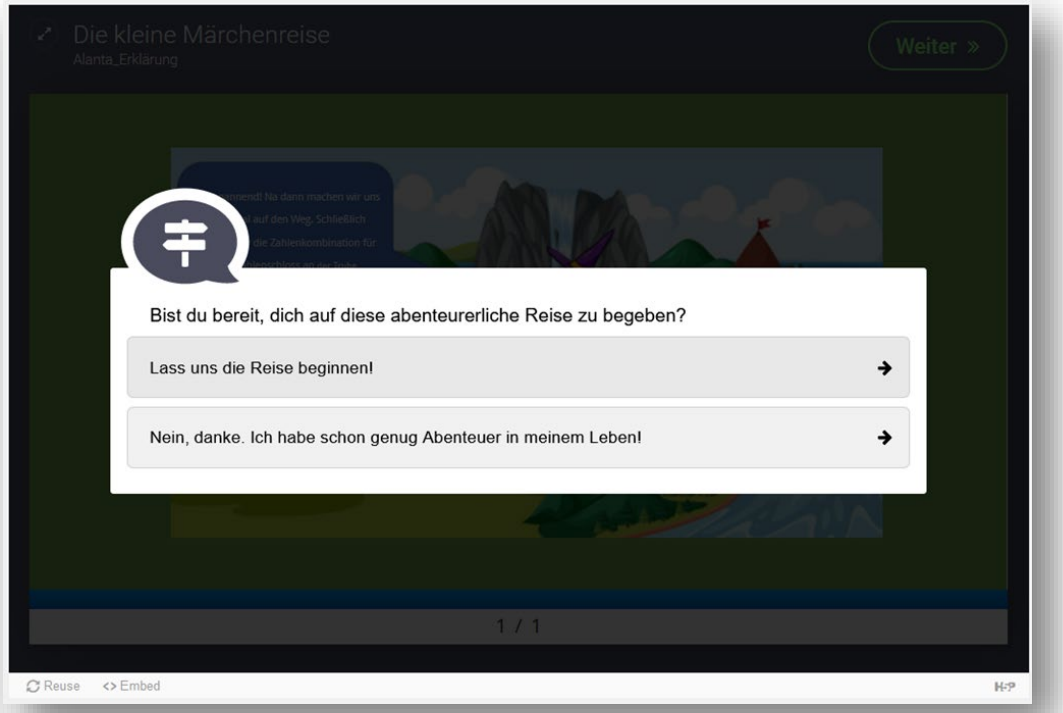




Ein Tag im Büro– Assessing application letters in Minecraft
(Lukas Hahn, Moritz Löbel, Tobias Neumann, Tim Schiwek)

GAME-BASED LEARNING DESIGN

Student projects – Examples



Die kleine Märchenreise – Learning about fairy tales with H5P
(Lea Eimler, Anna-Maria Hoke, Flora Linstedt, Victoria Spilner)
https://apps.zum.de/apps/maerchenreise

GAME-BASED LEARNING DESIGN

Student projects – Examples

Klaus: The Game – Exploring english movies and language with GB Studio
(Friedmar Johannes Göbel)
https://jojoteacher.itch.io/klaus-beta

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