

René Barth
Benjamin Eugster

Eduhub Days 2022

Game-based Learning Design

A project-based approach

15.02.2022

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

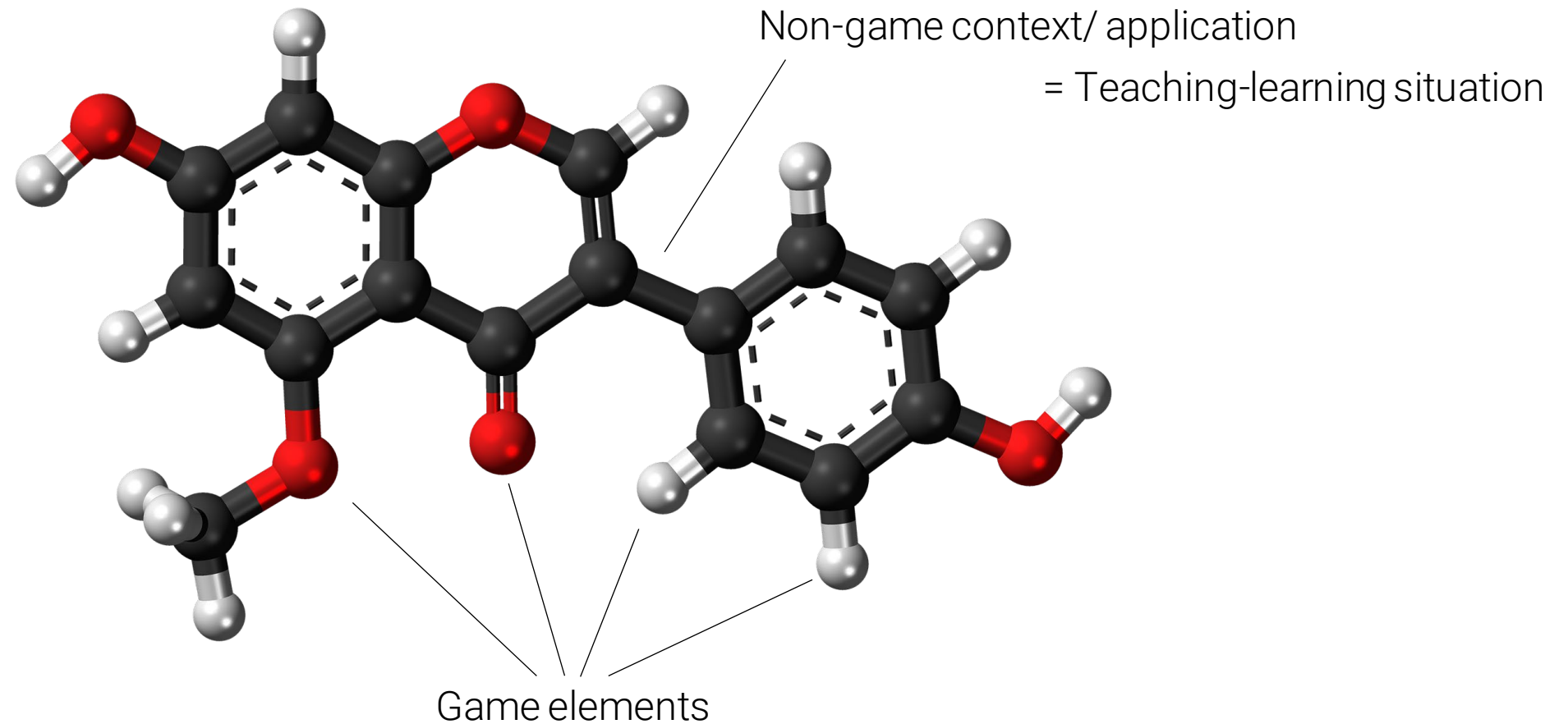
Four perspectives on video games in education: MOTIVATOR

Gamification



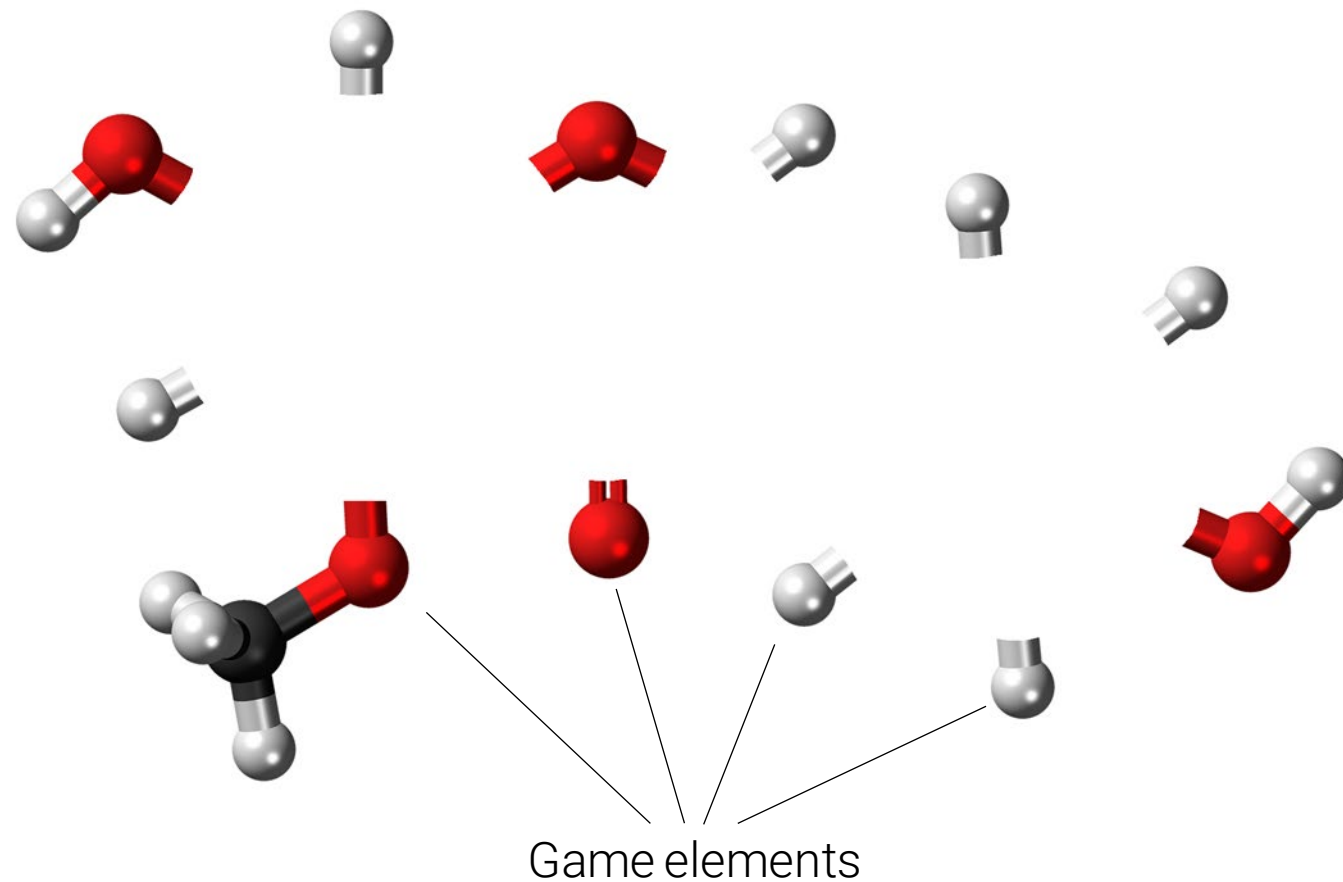
GAME-BASED LEARNING DESIGN

Gameful framing through game elements



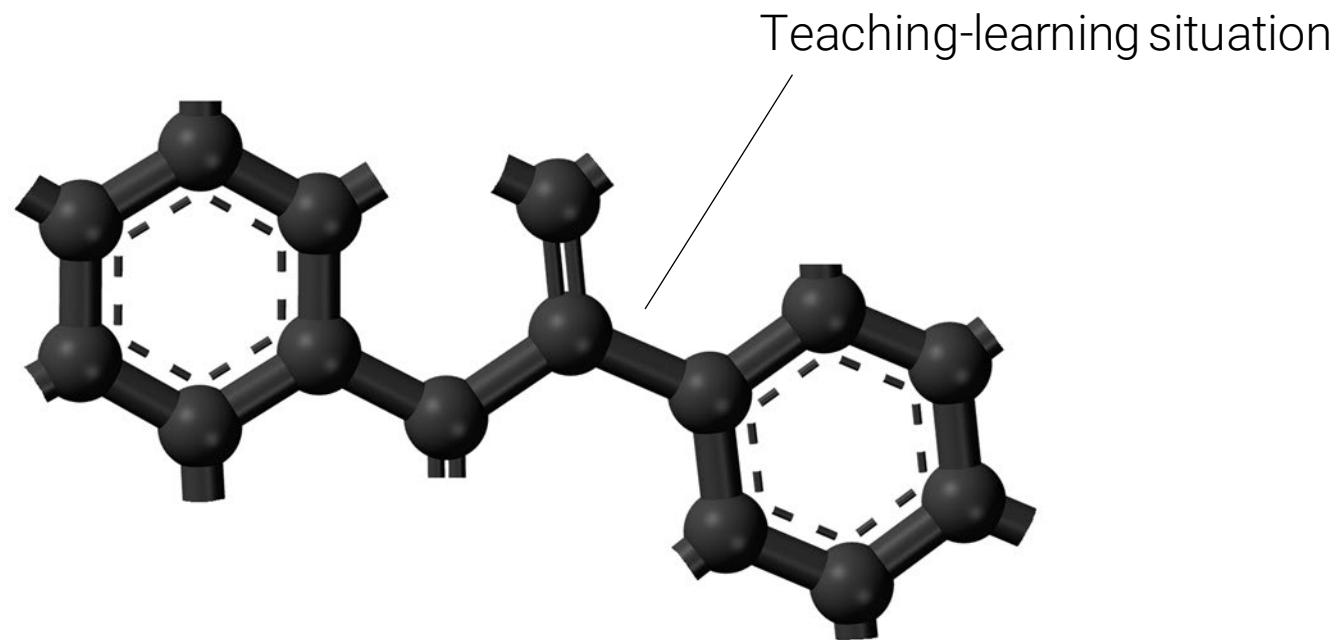
GAME-BASED LEARNING DESIGN

Gameful framing through game elements



GAME-BASED LEARNING DESIGN

Gameful framing through game elements



GAME-BASED LEARNING DESIGN

Where Gamification comes into play



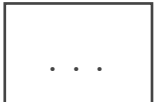
Crowdsourcing

Advertising / Marketing



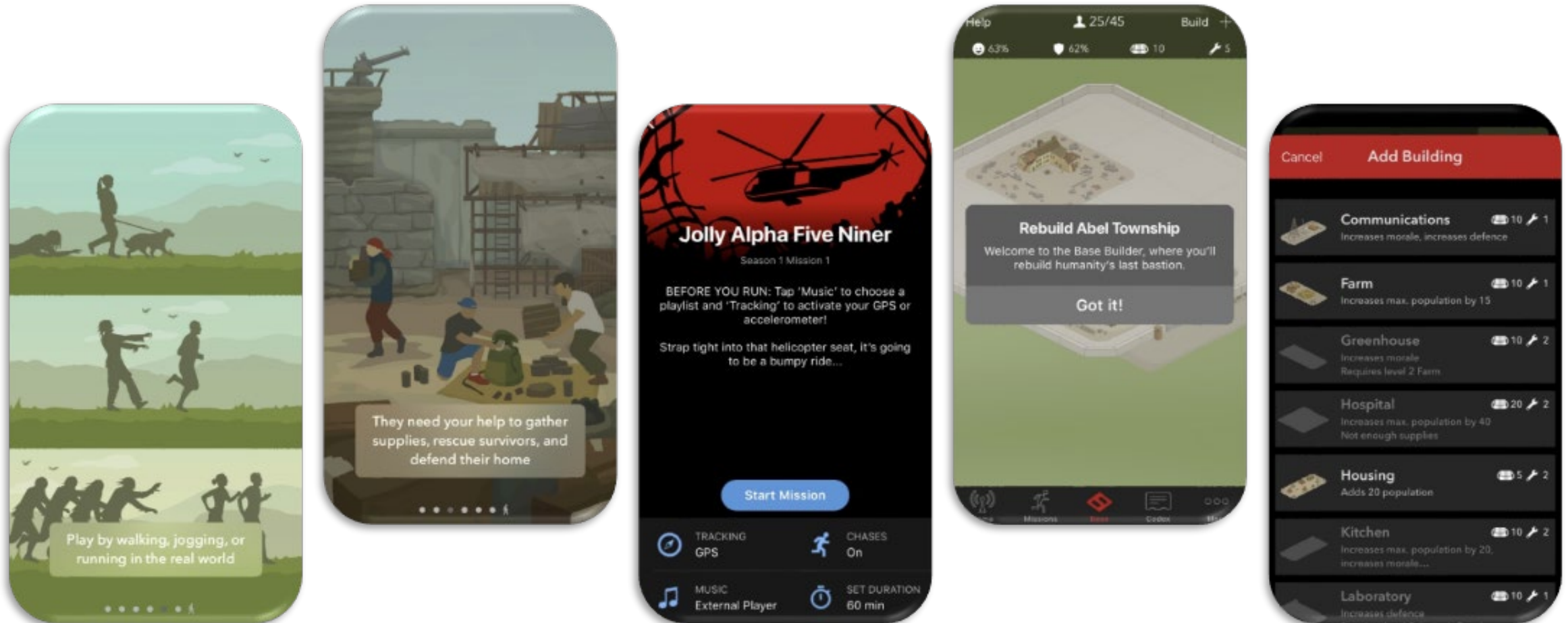
Education

Healthcare and medicine



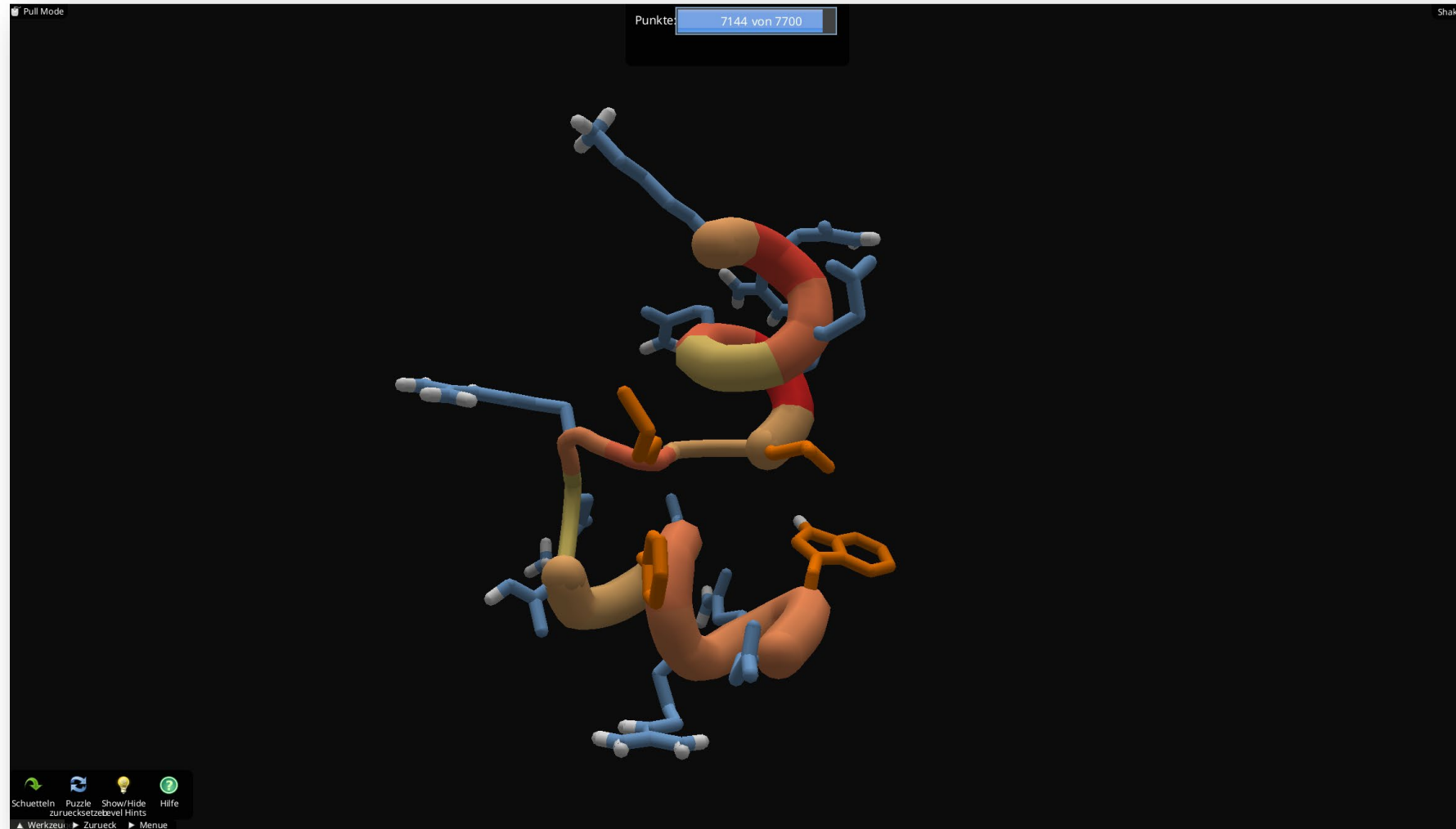
GAME-BASED LEARNING DESIGN

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)

The screenshot displays the Classcraft game interface. At the top left is the 'CLASSCRAFT' logo. On the right, there is a green button labeled 'Das Spiel beginnen' and a help icon. Below the logo is a list of player names, with 'Brad Hillis' highlighted in orange. The main area shows the player's profile for 'Brad Hillis', a 'Stufe 4 Magier' (Level 4 Mage). The profile includes a character image of a mage with a wide-brimmed hat and a staff, and a background image of a fantastical landscape with a waterfall and a rainbow. The profile also shows four stats: HP (20), AP (50), XP (4175), and GP (201). Below the stats are three buttons: a red minus sign, an orange plus sign, and a black button with a white plus sign. At the bottom of the profile are two circular icons labeled 'Manatransfer' and 'Manaschild'. The top right of the interface shows a row of player names and their stats: Opal Delosantos (65 HP, 30 AP), Norbert Herbert (32 HP, 30 AP), Brad Hillis (20 HP, 50 AP), Sharell Jezierski (8 HP, 50 AP), Tillie Lenser (13 HP, 35 AP), and Jewel Oberholzer (40 HP, 35 AP). At the bottom of the profile area is a button labeled 'KRÄFTE LERNEN'.

CLASSCRAFT

Das Spiel beginnen ?

Die lästigen Kobras

Opal Delosantos: 65 HP, 30 AP
Norbert Herbert: 32 HP, 30 AP
Brad Hillis: 20 HP, 50 AP
Sharell Jezierski: 8 HP, 50 AP
Tillie Lenser: 13 HP, 35 AP
Jewel Oberholzer: 40 HP, 35 AP

Brad Hillis
Stufe 4 Magier

HP 20
AP 50
XP 4175
GP 201

Manatransfer Manaschild

KRÄFTE LERNEN

GAME-BASED LEARNING DESIGN

Example 4: *Classcraft* (Classcraft Studios 2013)

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Player	HP	AP	XP	GP
Opal Delosantos	65	30		
Norbert Herbert	32	30		
Brad Hillis	20	50	4175	201
Sharell Jezierski	8	50		
Tillie Lenser	13	35		
Jewel Oberholzer	40	35		

GAME-BASED LEARNING DESIGN

Example 4: *Classcraft* (Classcraft Studios 2013)

The screenshot displays the Classcraft game interface. At the top, the 'CLASSCRAFT' logo is on the left, and a green button labeled 'Das Spiel beginnen' (Start Game) is on the right. Below the logo is a list of player names, with 'Brad Hillis' highlighted in orange. The main area shows the player's profile for 'Brad Hillis', a 'Magier' (Magician) at 'Stufe 4' (Level 4). The profile includes four stats: HP (20), AP (50), XP (4175), and GP (201). Below the stats are three buttons: a red minus button, an orange plus button, and a black plus/minus button. At the bottom of the profile are two skill icons: 'Manatransfer' and 'Manaschild'. The background features a large, colorful landscape with a waterfall and a city in the distance. In the foreground, several smaller character models are visible.

Player Name	HP	AP	XP	GP
Opal Delosantos	65	30		
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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.)

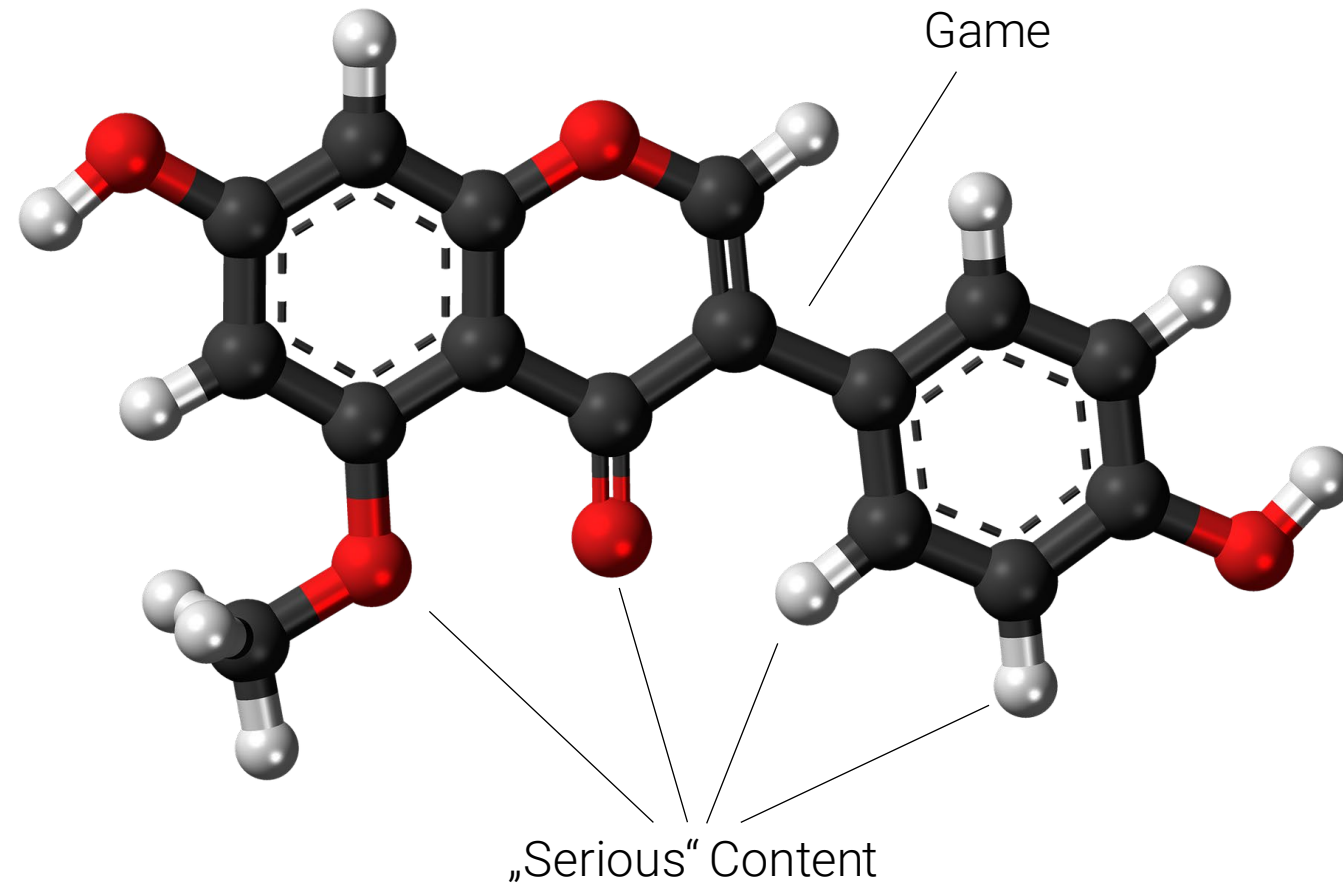
„Non-game“ / Purpose
(Learning) Content



Game
Game structure

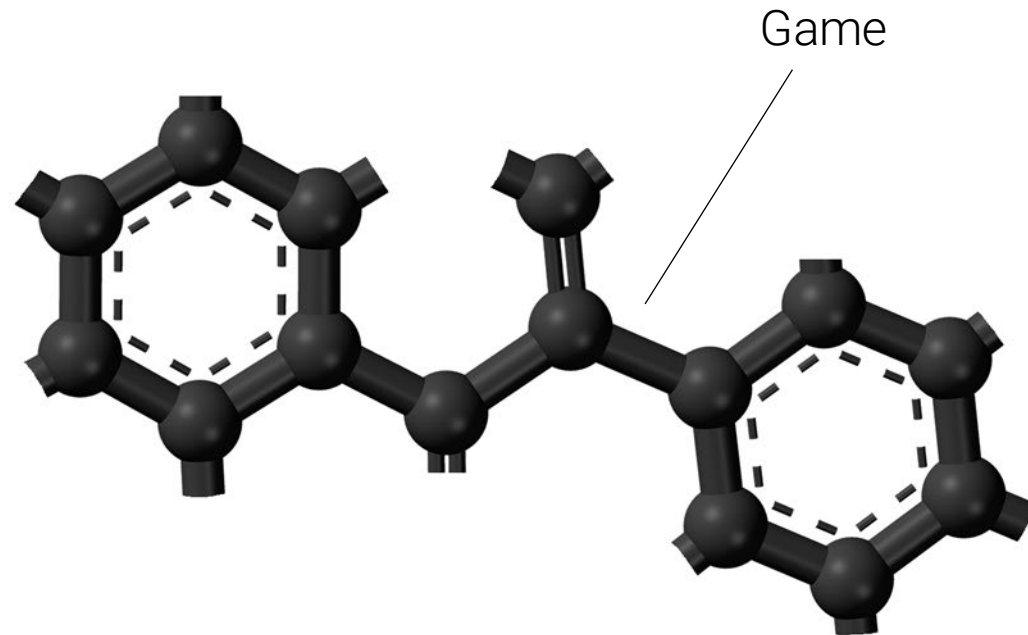
GAME-BASED LEARNING DESIGN

„Enrichment“ of complete game frameworks



GAME-BASED LEARNING DESIGN

„Enrichment“ of complete game frameworks



GAME-BASED LEARNING DESIGN

Examples for Serious Games



Fake It
To Make It



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

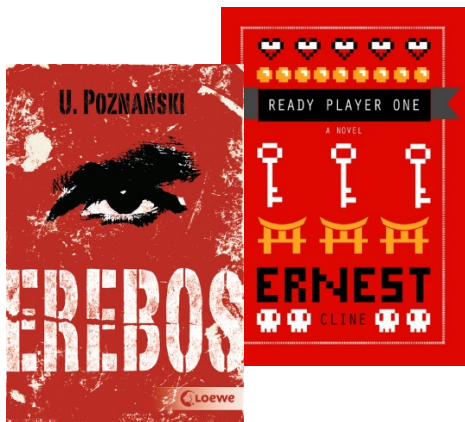
Subject matter

Carrier

Occasion

GAME-BASED LEARNING DESIGN

Four perspectives on video games in education: OCCASION

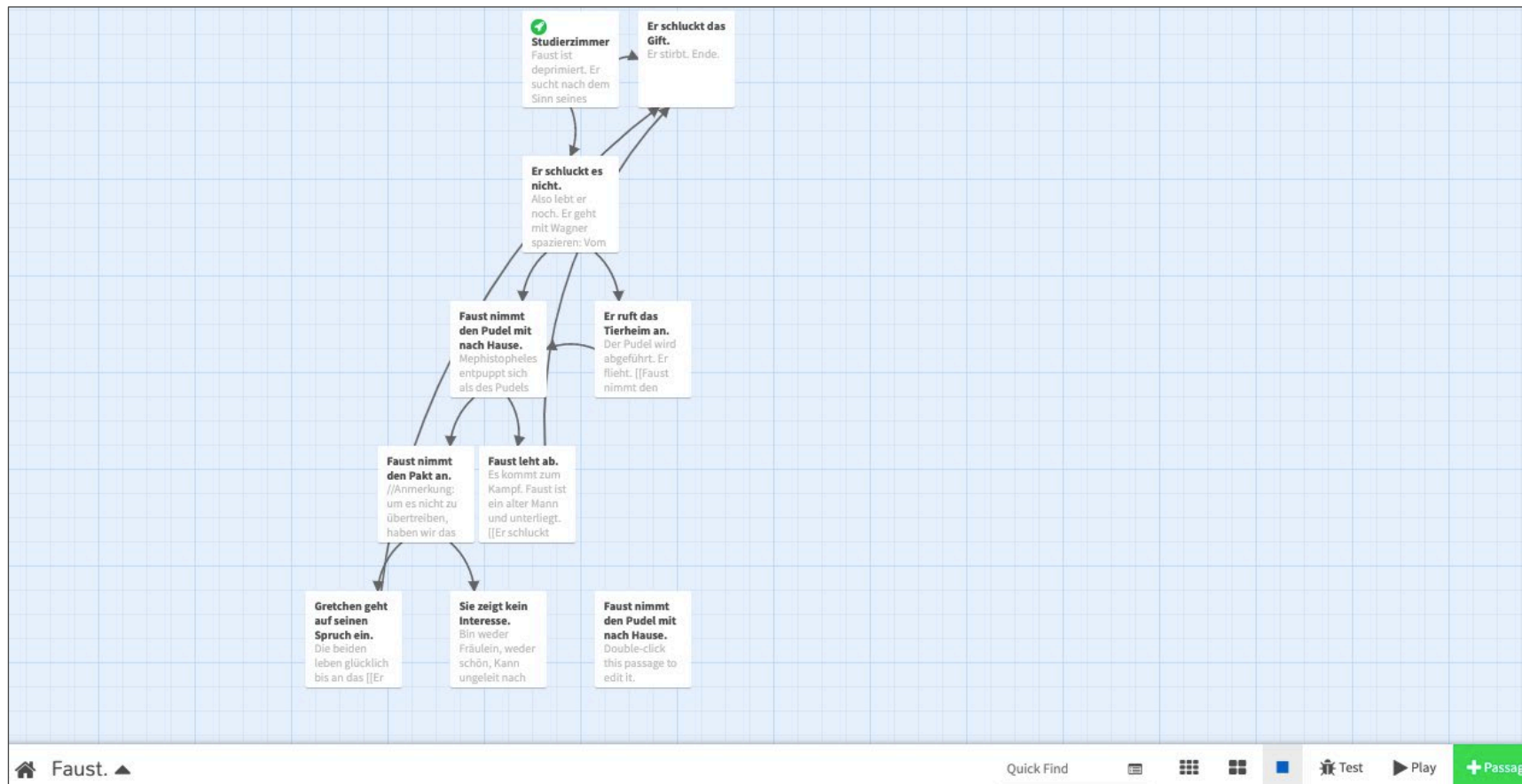


My best gaming experience



GAME-BASED LEARNING DESIGN

Interactive fiction with *Twine*



GAME-BASED LEARNING DESIGN

Minetest as a free Minecraft alternative



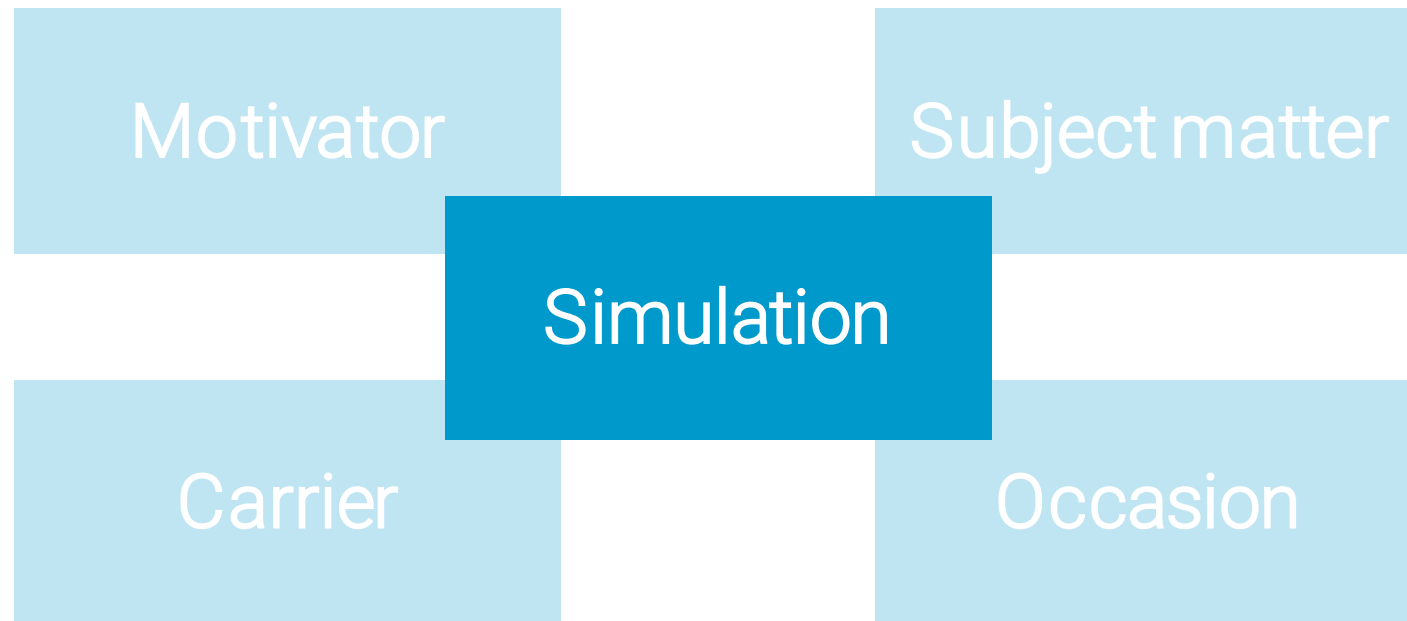
GAME-BASED LEARNING DESIGN

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

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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

Theoretical basics

Motivator

Carrier



Input-oriented approach

Subject matter

Occasion



Learning through teaching

GAME-BASED LEARNING DESIGN

Changing the focus

Motivator

Carrier

Products

Subject matter

Occasion

Concepts

▶ Summer 2020

GAME-BASED LEARNING DESIGN

Changing the focus

Motivator

Carrier

Products

➤ Winter 20/21

Subject matter

Occasion

Concepts

➤ Summer 2020

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
- ...

GAME-BASED LEARNING DESIGN

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**MUCH FREEDOM
LITTLE TIME**

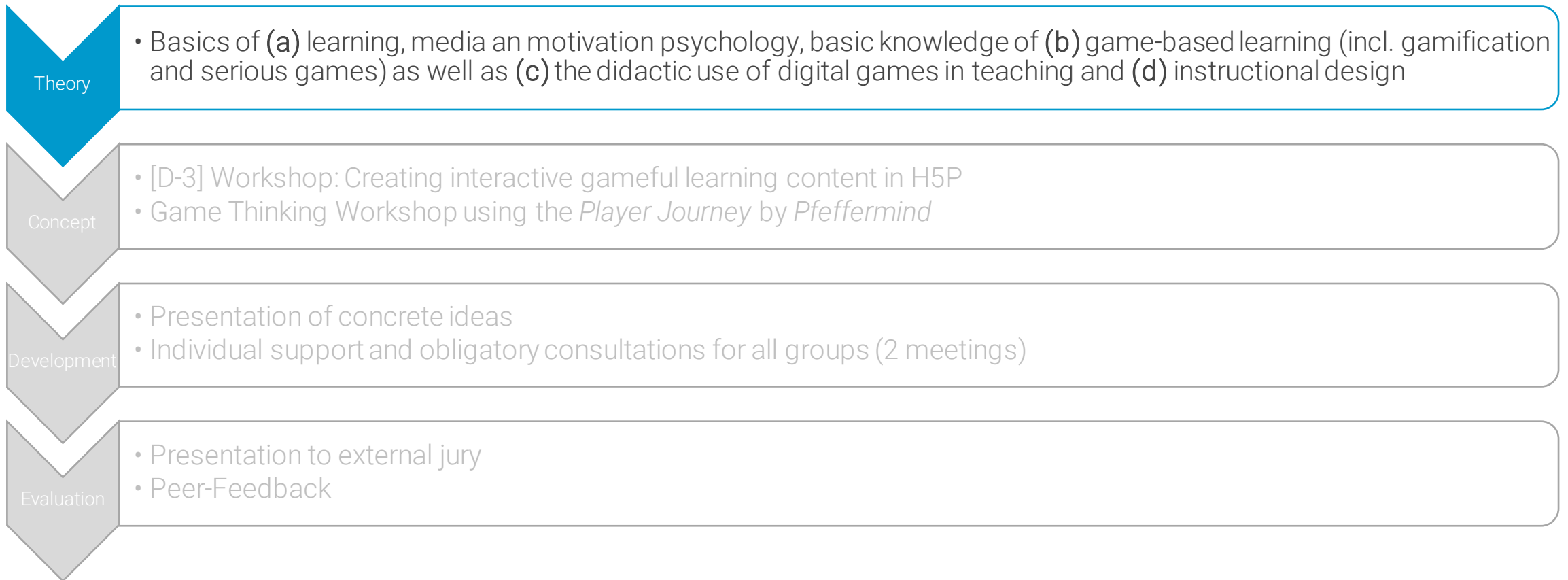
GAME-BASED LEARNING DESIGN

New structure in winter 21/22



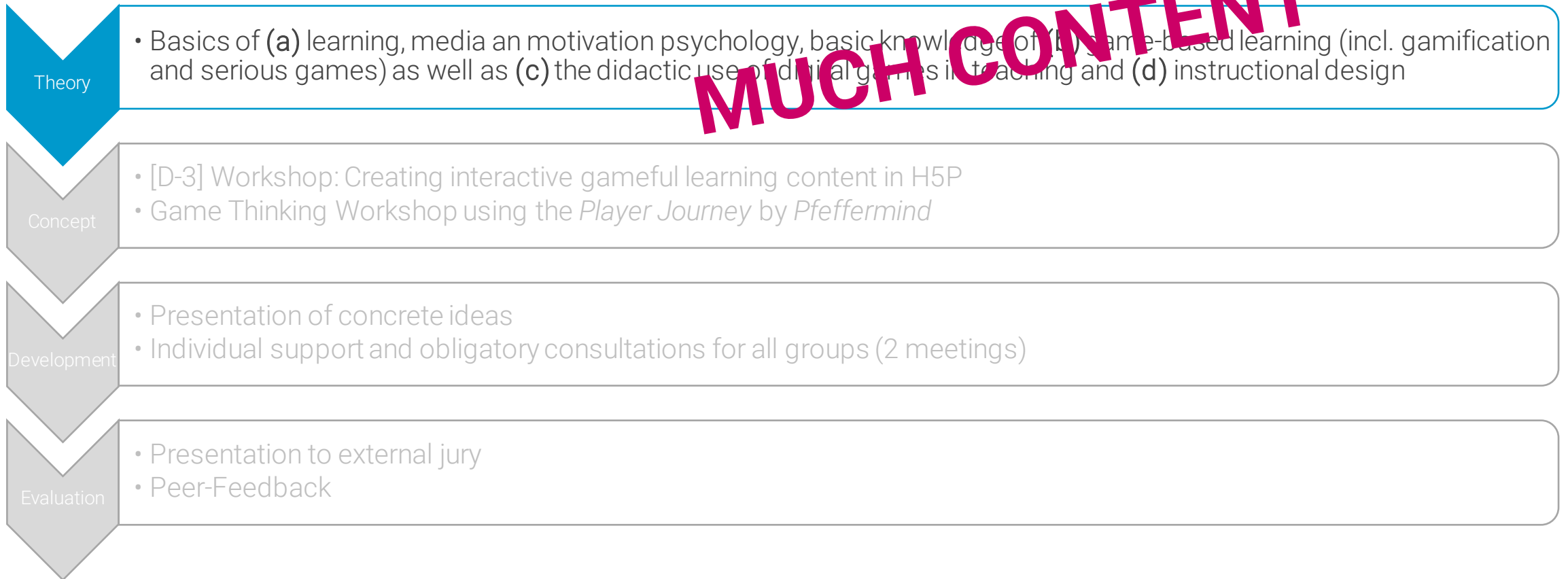
GAME-BASED LEARNING DESIGN

New structure in winter 21/22



GAME-BASED LEARNING DESIGN

New structure in winter 21/22



GAME-BASED LEARNING DESIGN

Theoretical 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

Seminarkonzept

1. Theorietext-Challenge war hilfreich und interessant.

2. -

3. Die Feedback-Show war ansprechend.

Der Theorieteil war zwar nicht sehr schön, aber nötig und hilfreich. Der Input zu H5P und Co. hat viele Möglichkeiten zur Ideenumsetzung aufgezeigt, die vorher wahrscheinlich unbekannt waren. Auch das Feedback war gut organisiert und sehr hilfreich, um den Prototypen auf dem Weg zu einem echten Spiel voranzubringen.

👍 1 🗨️ 0

👤 Kommentar hinzufügen

👍 0 🗨️ 0

👤 Kommentar hinzufügen

gutes Seminarkonzept

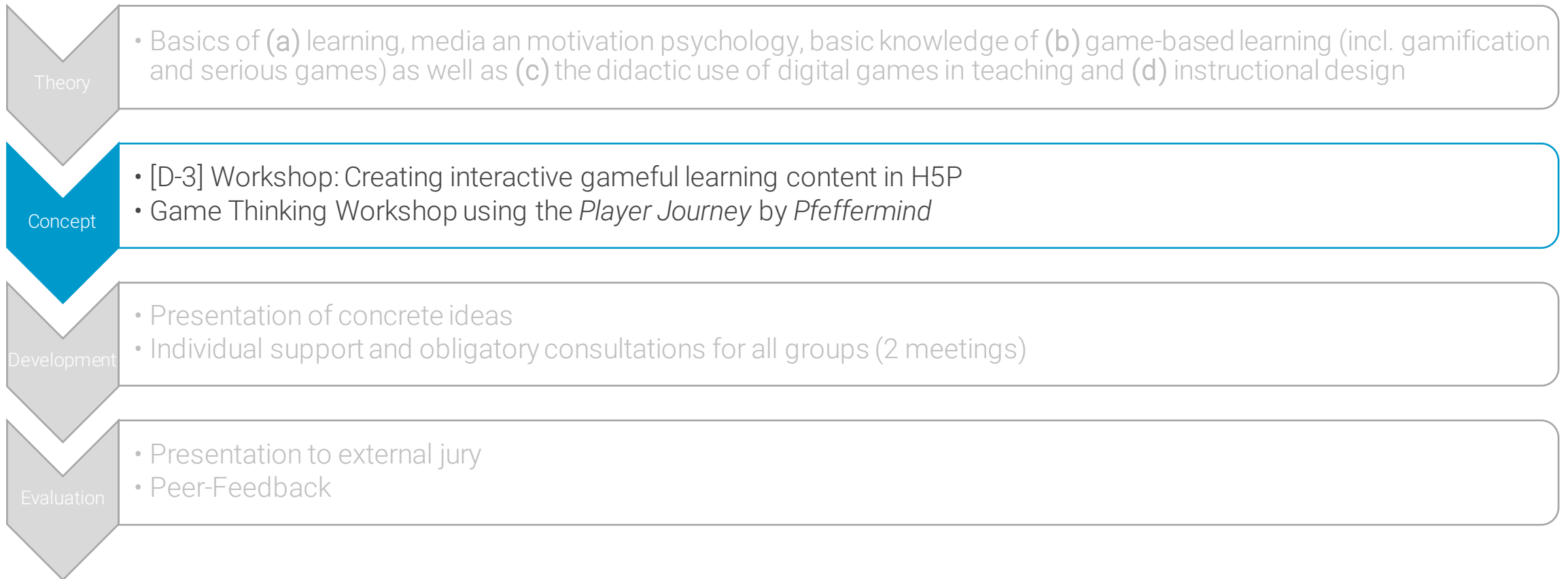
- durch die Challenge am Anfang kam man gut in die GA
- die theoretischen Grundlagen hätten ausführlicher erklärt werden sollen an manchen Stellen
- das Feedback-Format hat mir sehr gut gefallen

👍 0 🗨️ 0

👤 Kommentar hinzufügen

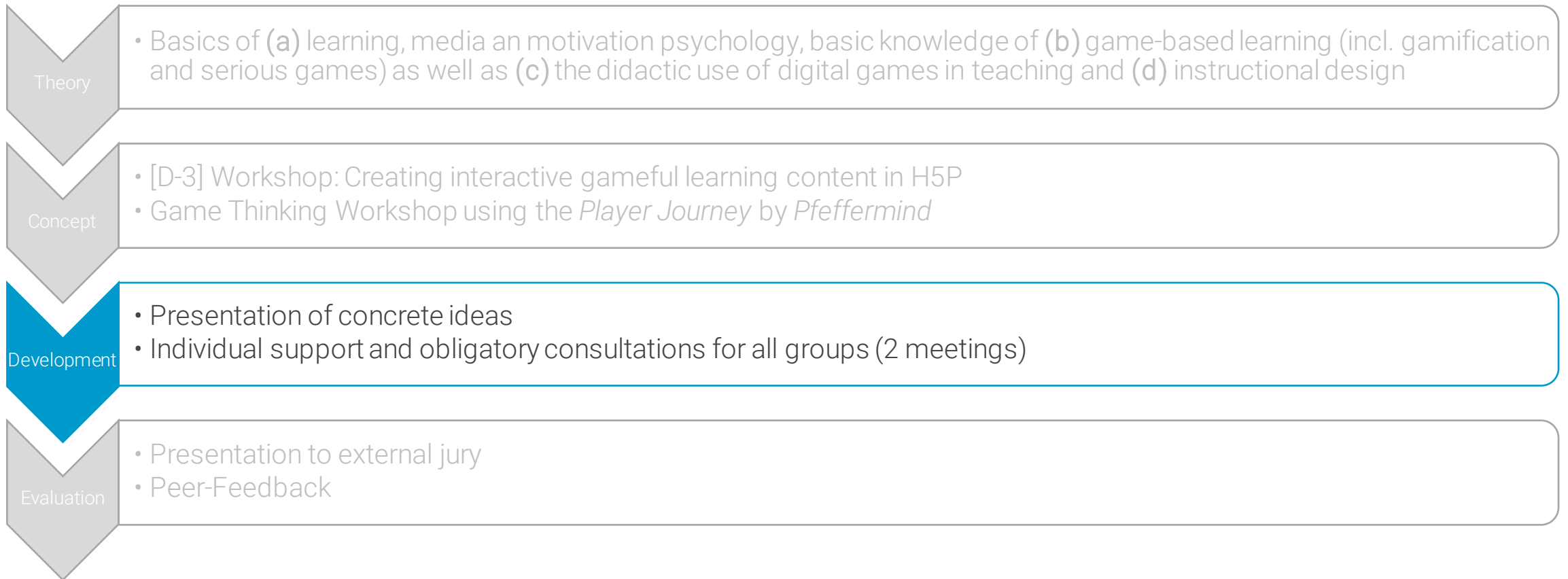
GAME-BASED LEARNING DESIGN

New structure in winter 21/22



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New structure in winter 21/22



GAME-BASED LEARNING DESIGN

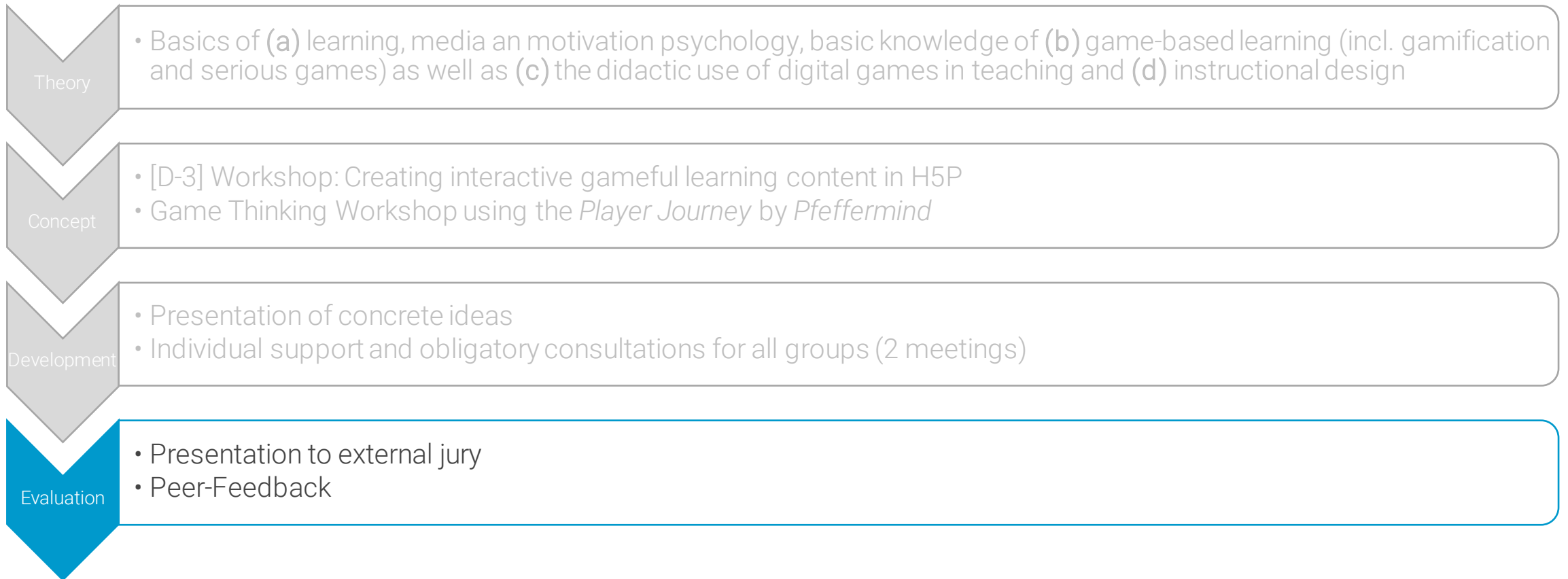
Accompanied development phase

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

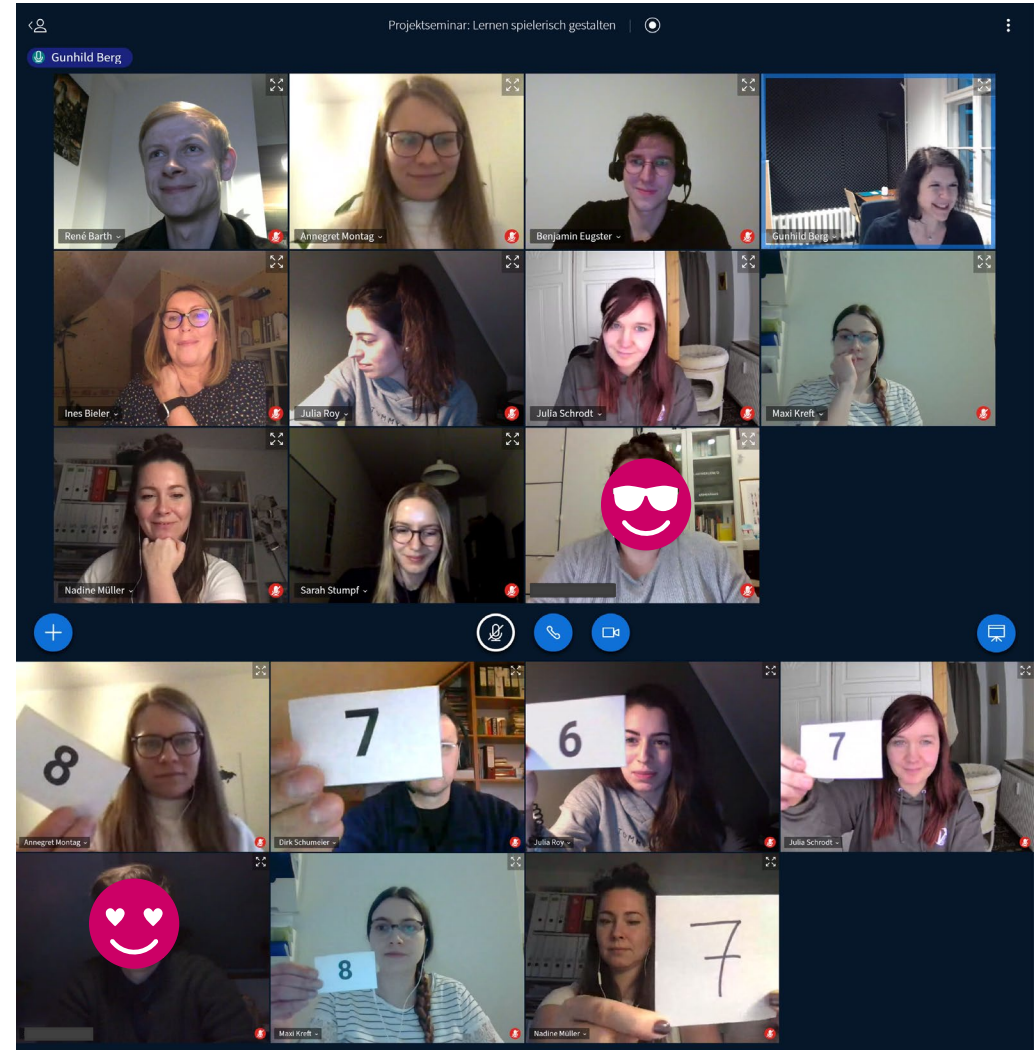
New structure in winter 21/22



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 through games with didactic media products



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

Dr. Gunhild Berg, Institute of German Studies

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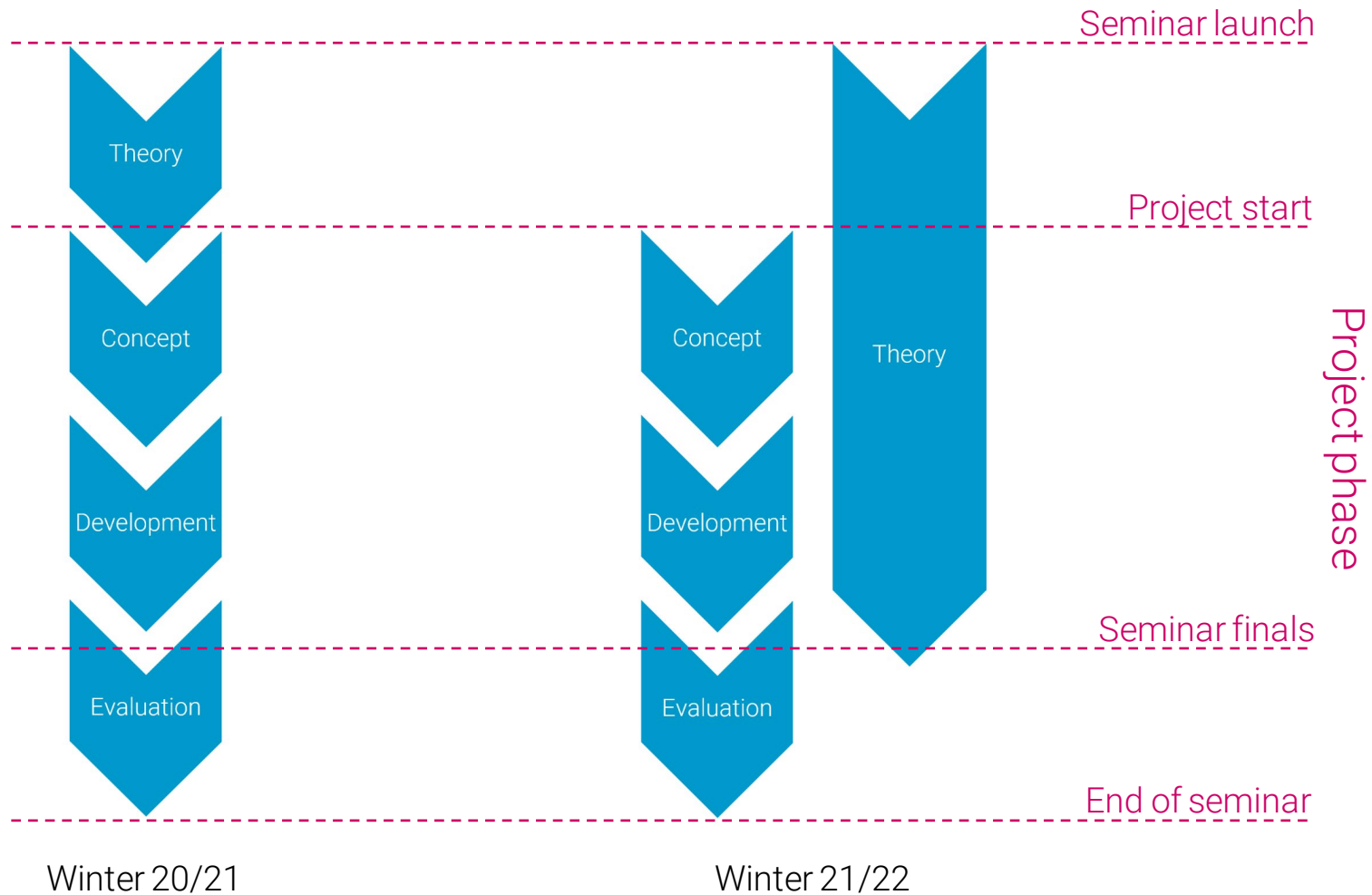
Benjamin Eugster,  D-3

Advantages:

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

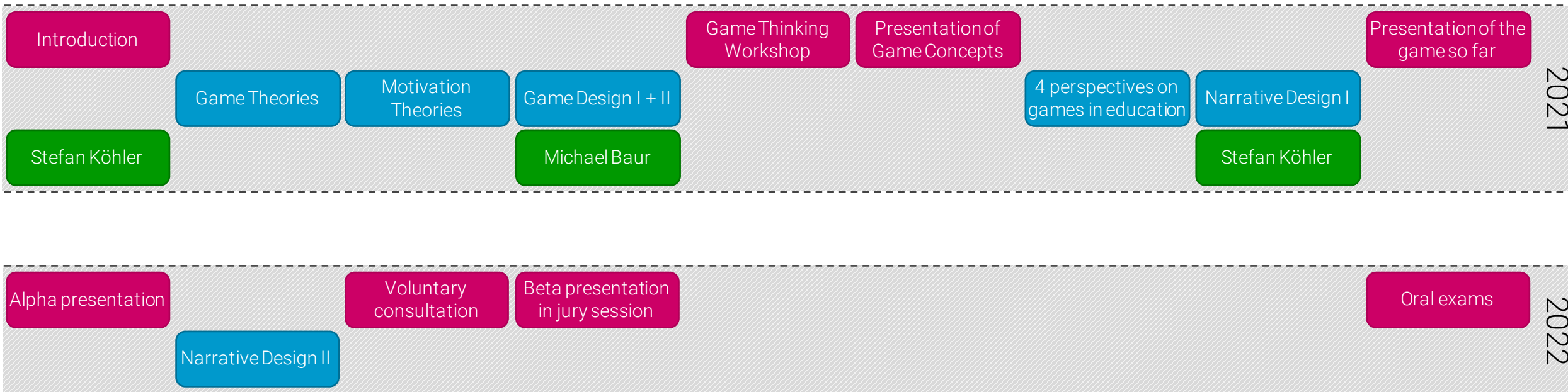
GAME-BASED LEARNING DESIGN

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*

GAME-BASED LEARNING DESIGN

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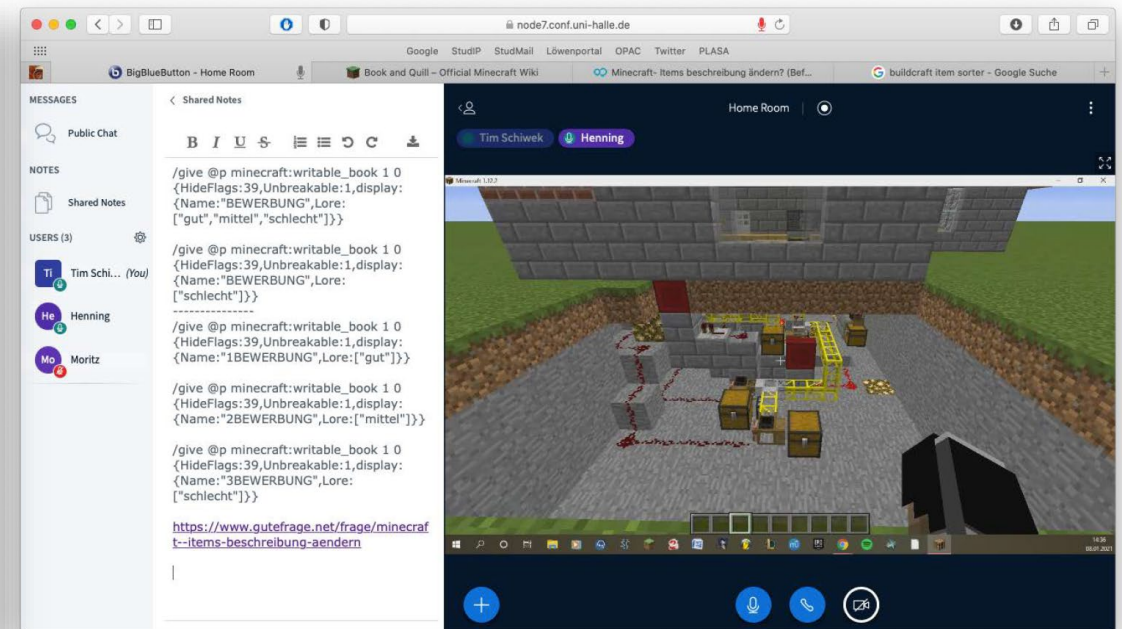
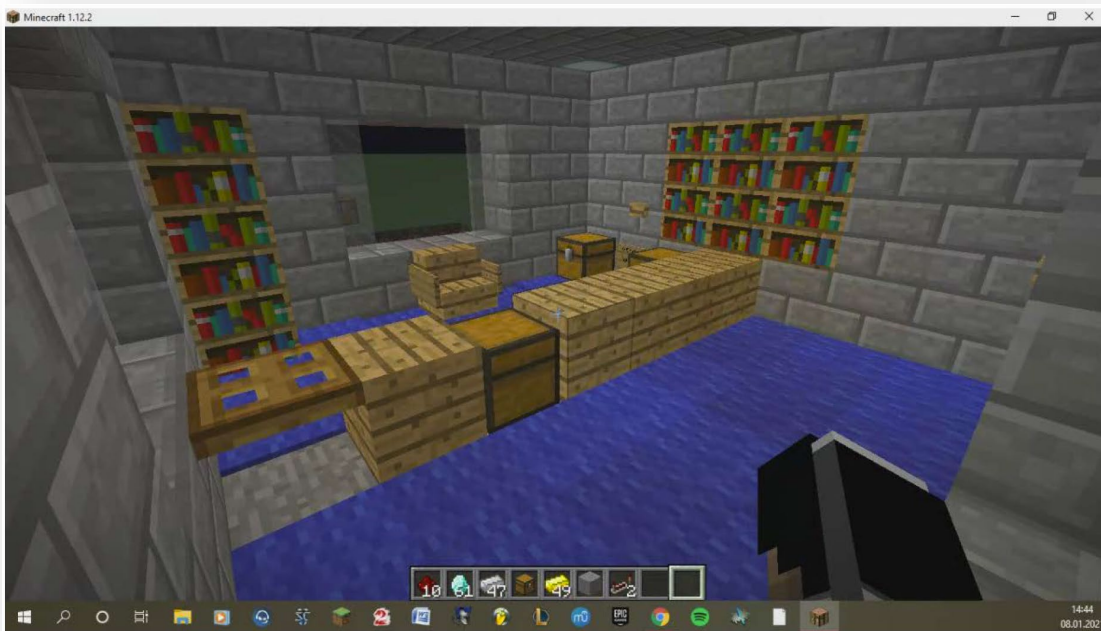
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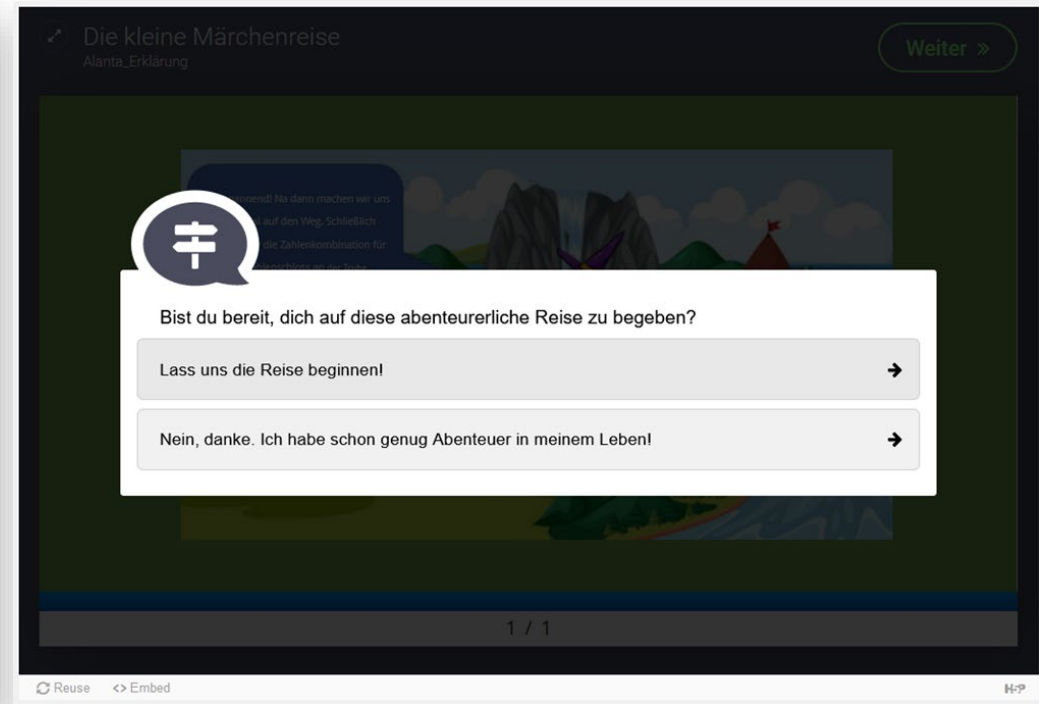
Student projects – Examples



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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