

Quizzing to Become an Engineer – A Commercial Quiz App in Higher Education

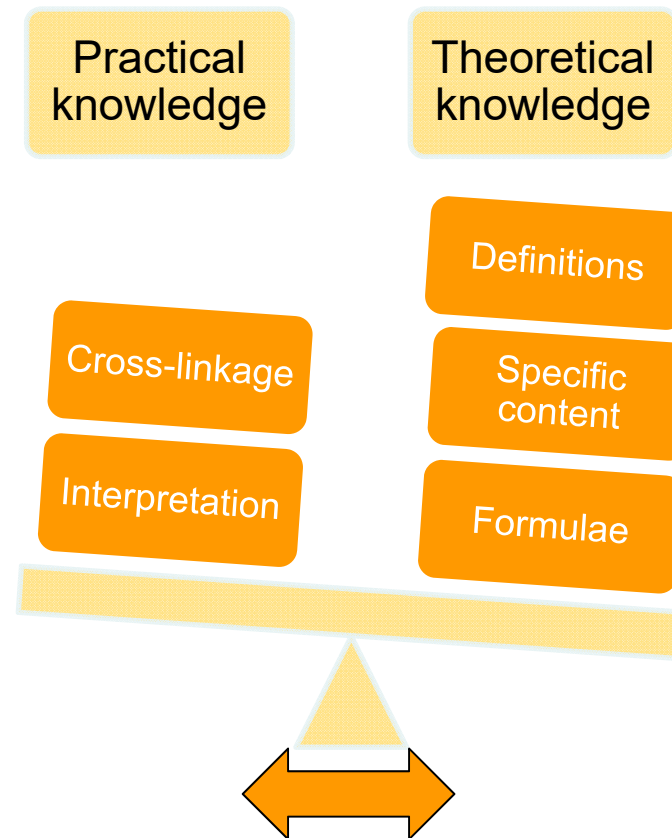
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Engineering Education: Complex Technical Knowledge?

What do we need to improve technical knowledge?



Balanced learning support tool to improve technical knowledge

Background – Current Situation (1)



Source: Weitze

Lecture: Just listening

- + Involvement of many students
- No adapted teaching

Workshop: Practical experiences

- + High learning efficiency
- Time consuming for preparation

Background – Needs (2)

Our requirements:

- Tool to support engineering content in Bachelor and Master Courses
- Easy Accessibility and high availability
- Applicable in lectures and for self-driven learning

Available:

- Multiple Choice Questions for technical issues appropriate
- Motivational advantage of Game based learning
- QuizUp offers user-defined topics



Game mechanics and learning content should be aligned

“Intrinsic Integration”, Habgood & Ainsworth 2011

Background – Working Examples (3)

➔ Serious games in graduate education

Our Research:

- **QuizUp**
- *Reading Game*
- *Sewer Rats shooter* Kanalrattenshooter
- *Anatomy of the City* App for a city walk with questions
- *City Skylines* for water infrastructure planning
- *SimCity* for infrastructure planning and refugee camp planning



Source: Screenshot SimCity; Weitze

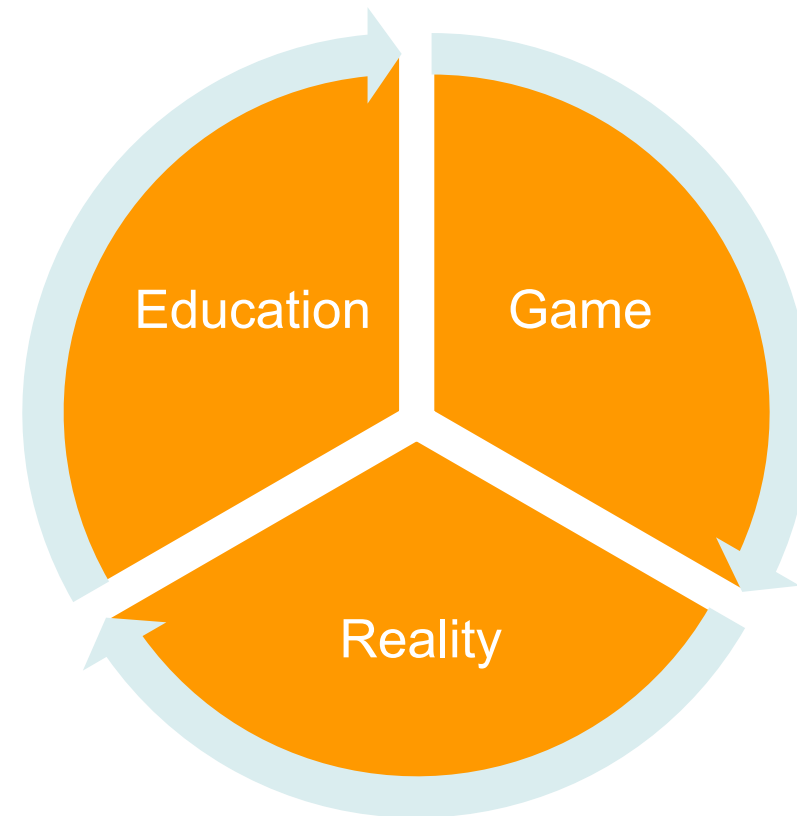
Background – Quiz Apps (4)

➔ Mobile Quiz App as a serious game

Commercial Quiz Apps e.g.:

- Quizkampen QuizDuello
- **QuizUp**

QuizUp for exam preparation

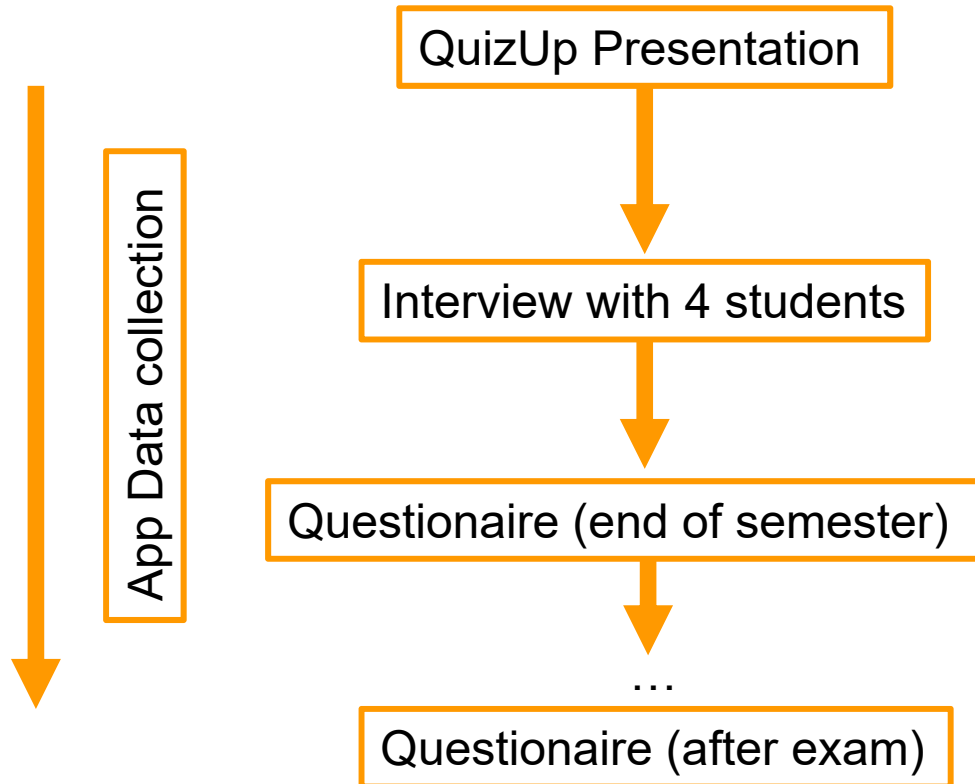


Methodology and Setting (1)

Measurement Technology (B.Sc.)
„Messgurus“ (N=13)

Anaerobic Technology (M.Sc.)
„Anaerobier“ (N=13)

+ Played in two lectures
+ Question by students



Methodology and Setting (2)

Source: Screenshot www.quizup.com

Own Topics

Erstellte Themen

- Messgurus Level 3
- Anaerobier Level 7

Neueste Auszeichnungen

QuizUp

- “Match”: 7 questions
- 1 out of 4 multiple choice question
- 10 seconds to answer
- Social network: rankings, chat, likes, follower
- Since September 2015: Own topics creatable

Methodology and Setting (3)

Source: Screenshot www.quizup.com

Me and my points

Time left

Opponent

ReSoWi 0

TIME LEFT 10

Zesty Lemon 0

In which federal state Weimar is located?

Saxony Thuringia Bavaria Saarland

Question

Correct answer

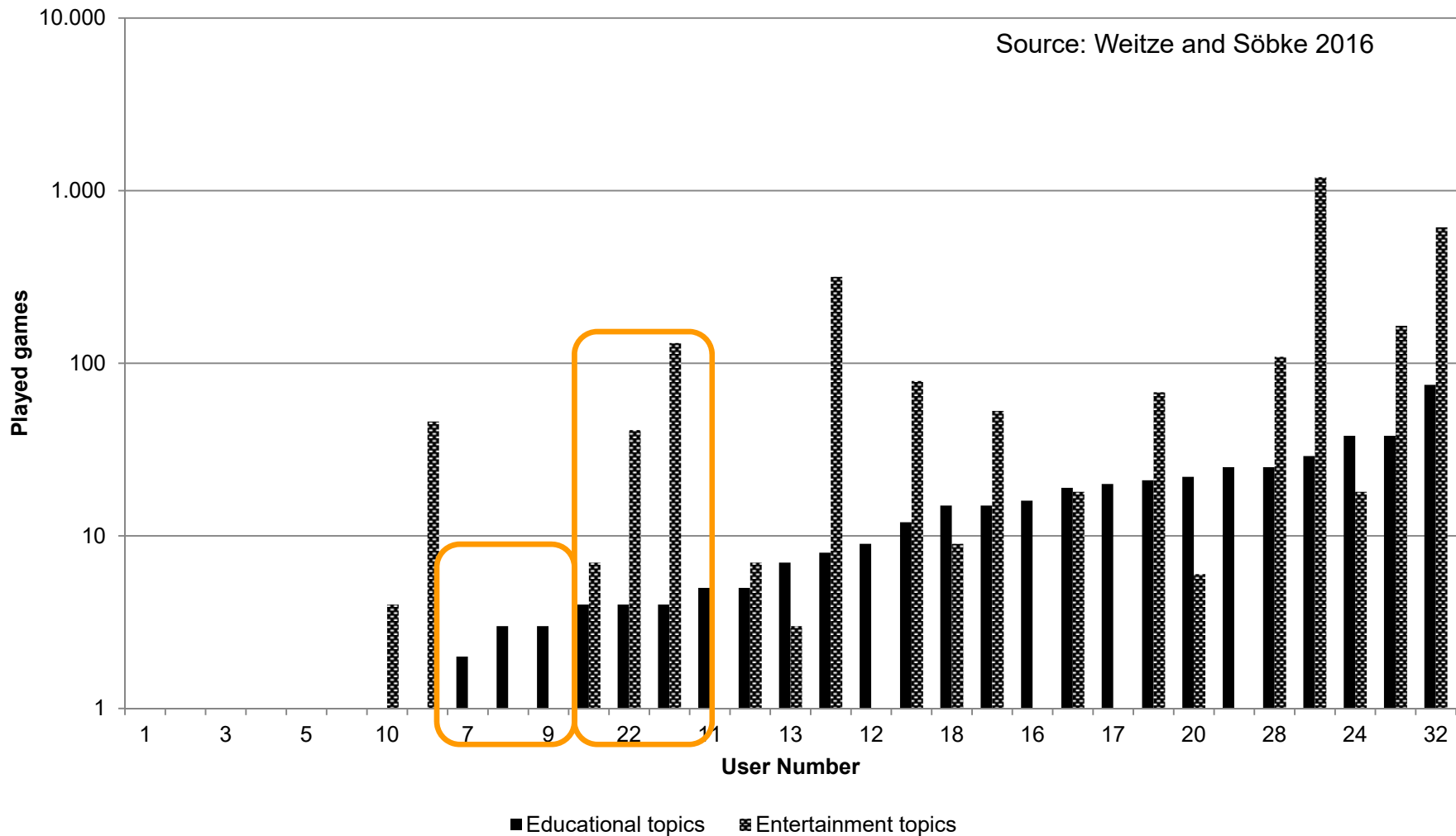
Results – Guideline-based Interview (1)

- 4 Students (1 male, 3 female) (2 Bachelor, 2 Master)
- 45 Minutes
- Audio recording

Results:

- Inhomogeneous prior gaming experience
- Inhomogeneous motivations to play (player types)
 - Competition
 - Sociability
 - Learning
- Different reception of opponent types
 - Friends
 - Strangers / Random players
 - Bots
- Demand: Changing or new questions

Results – App Data (2)



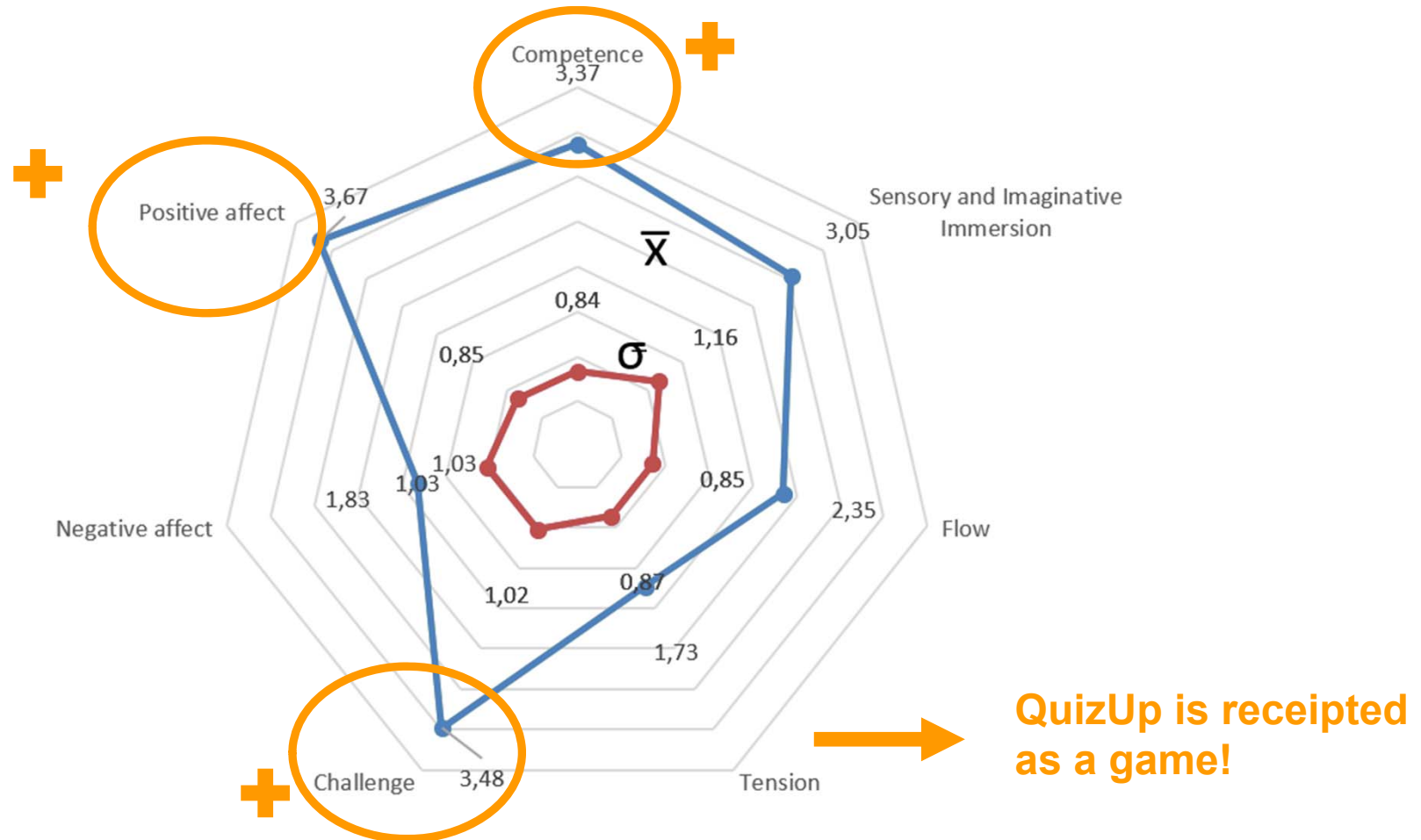
➔ **Two Types: Entertainment-oriented (“Player”) vs. Education-oriented (“Learner”)**

Results – Questionnaire (3)

- 26 Participants, 13 Master, 13 Bachelor
- 24 participants used QuizUp
- 81% have experiences in quiz games, 43% play quiz games often
- 38% positive attitude towards game-based learning
- 45% think time pressure in QuizUp impacts learning success negatively

Results – Questionnaire (4)

- Game Experience Questionnaire (GEQ) in-game variant



Source: Weitze and Söbke 2016

Discussion



- Gaming at the university?
- It is reality – Become an Engineer?
- Students don't want to play – it is a extra job!
- Students learn particular questions not general issues!
- A battle between students?



- Students have fun during playing time in a lecture!
- If it's a free task they can learn how and when they need!
- It simplifies reality but gives a helping hand!
- Students need an incentive – Play to get a good mark in the exam!
- Students can formulate own questions!

Conclusion

Lessons learned:

- Games are good to learn technical content in a good mood
- A lot of games exist – how to find a good one?
- QuizUp is an additional learning media for exam preparation
- Entertainment topics are much more interesting
- Different types of students: Learner vs. Gamer

Further Research:

- Summarize second questionnaire after the exam
- Different reception entertainment vs. educational topics – Why?
- Increase the attractiveness of educational topics
- Next semester: Comparison between QuizUp (gaming app) and Skive (learning app)

References

Software:

- QuizUp: www.quizup.com
- Sim City: <http://www.simcity.com/>
- Skive: <https://goskive.com/university/uni-weimar>
- Kanalrattenshooter: www.apple.com/itunes/

References:

- Habgood, M. P. J., Ainsworth, S. E. (2011): Motivating Children to Learn Effectively: Exploring the Value of Intrinsic Integration in Educational Games. *J. Learn. Sci.*, vol. 20, no. 2, pp. 169–206, Apr. 2011.
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- Parker, R.; Manuguerra, M.; Schäfer, B. (2013): The Reading Game – encouraging learners to become question-makers rather than questions-takers by getting feedback, making friends and having fun. In: *Proceedings of 30th ascilite Conference*, pp.681-684.
- Söbke, H. (2015): Space for seriousness? Player Behavior and Motivation in Quiz Apps. *Proceedings of Entertainment Computing (ICEC)*, (Oct 2015), 482–489.
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Quizzing to Become an Engineer –

A Commercial Quiz App in Higher Education

QuizUp
Connecting people through shared interests

- Topics for every interest
- Play against friends in real time
- Discover like-minded people
- And it's FREE!

SIGN UP **LOG IN**

40 Questions

Photo	Question	Correct answer	Incorrect answer
	+ Add question		
	Welche Funktion hat das Rührwerk bei der Nassfermentation?	Erhöhung der Abbaudynamik	Reduktion Methanemi
	Wie erhöht der Einsatz von Rührwerken den Abbaugrad der anaeroben Behandlung?	Vermeidung von Heterogenitäten	Steigerung Sandehalte
	Wie kann Methan energetisch genutzt werden?	Verbrennung in BHKW	Nutzung de Gaswärme
	Welcher der folgenden Parameter ist ein Belastungsparameter?	organische Raumbelastung	Biogasertr
	Welche Möglichkeit gibt es, der Bildung von Totzonen in der Nassvergärung entgegenzuwirken?	Einsatz von Rührwerken	Stetiger Substratwe
	Welche Vorteile bietet die Fassung und Nutzung von Schwachgas auf Biogasanlagen?	Steigerung der Gesamteffizienz	Steigerung Substrateir
	Wie hoch ist der nutzbare Energiegehalt von 60% Biogas?	6 kWh/m ³	10 kWh/m ³

www.quizup.com

Available on the App Store | Get it on Google play | Available at amazon | Download from Windows Phone Store

LANGUAGE:
EN DE ES(ESP) ES FR BR

Thank you for your kind attention!

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