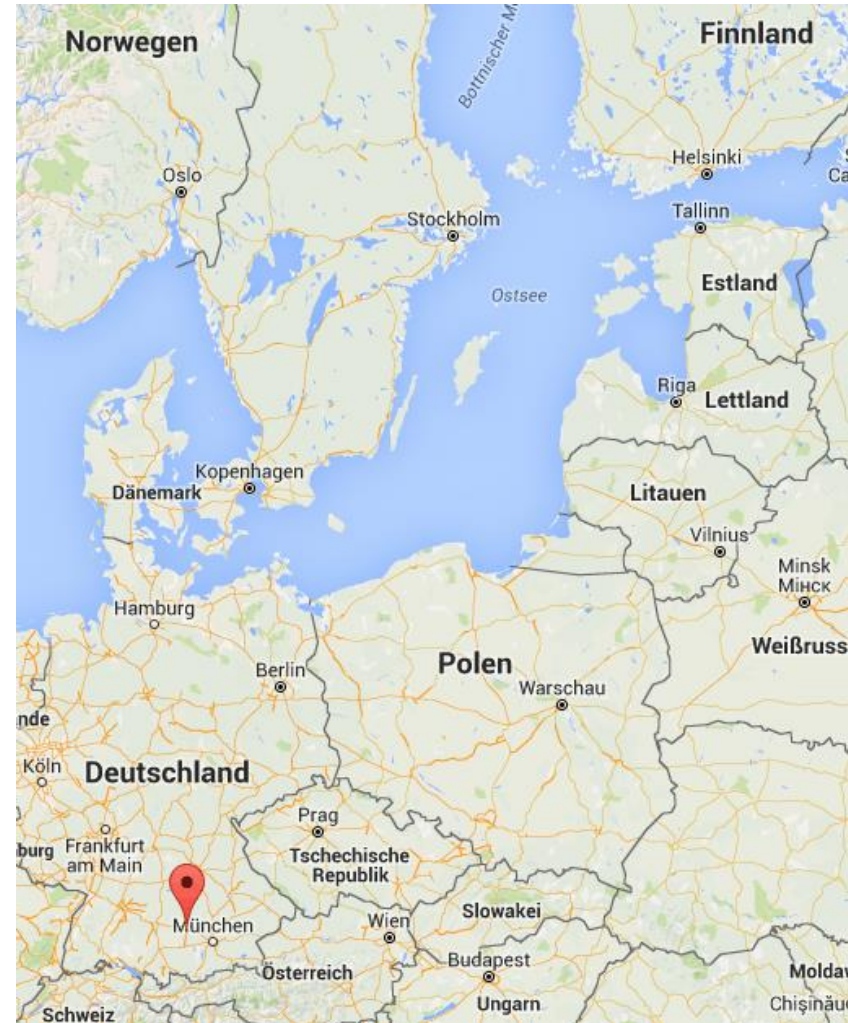


Geogames in Geography Education – A Design-based Research Study



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- Introduction
- Research framework
 - Design-based research
 - Geogame Neocartographer
 - Research questions and first results
- Conclusion and outlook

Location-based mobile learning (LBML)

- mobile electronic devices (MED) as tools for geography education
- often used in game-based learning and gamification context
- potential for sustained learning experiences
- growing number of "best practice" applications



LBML obstacles

- lack of technical equipment
- teachers' concerns
- re-location of game content
- lack of thoroughly designed and tested games for geography education

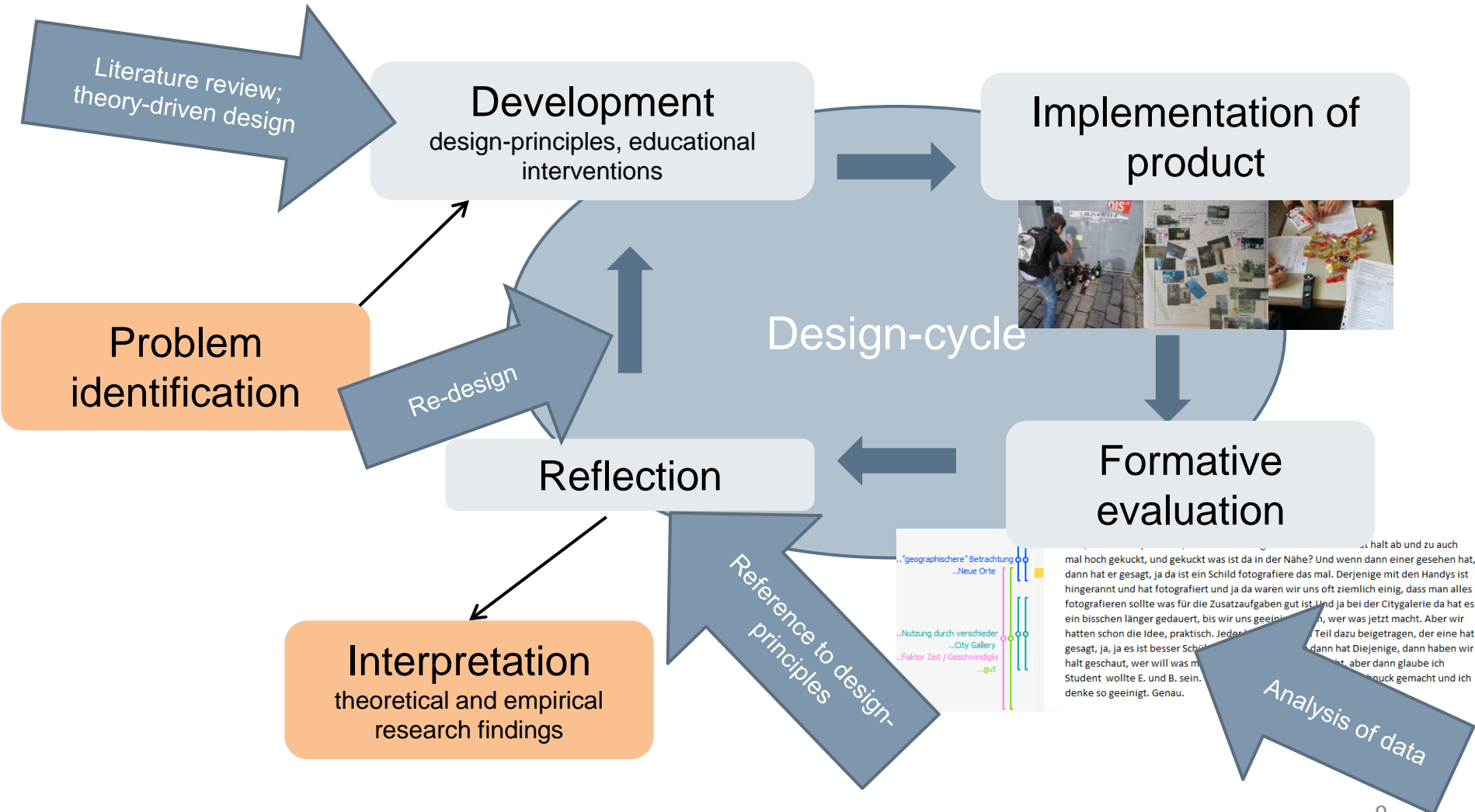


Need for action
→ development of
didactical teaching
concepts

Design-based research (DBR)

“DBR is a methodology designed by and for educators that seeks to increase the impact, transfer, and translation of education research into improved practice.”

(Anderson et al. 2012, p. 16)



Design principles

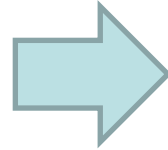
- derived from theory → applied for specific context
- adapted, discarded or confirmed during research process
- function as guidelines

“If you want to design intervention X for the purpose/function Y in context Z, then you are best advised to give that intervention the characteristics A, B, and C, and to do that via procedures K, L, and M, because of arguments P, Q, and R.”

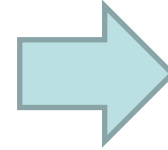
(Van den Akker, 1999)

Geogame Neocartographer - teaching sequence

introduction of
the game and
organizational
measures

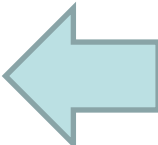
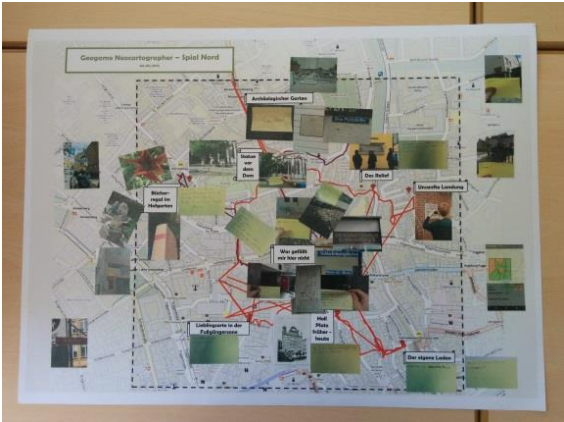
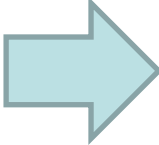


implementation
outdoors



debriefing and
reflection
teaching
sequence

Geogame Neocartographer - teaching sequence



Research questions

How can LBML with Geogames contribute to the development of a more differentiated perception of space and to the ability to reflect upon spatial perceptions?

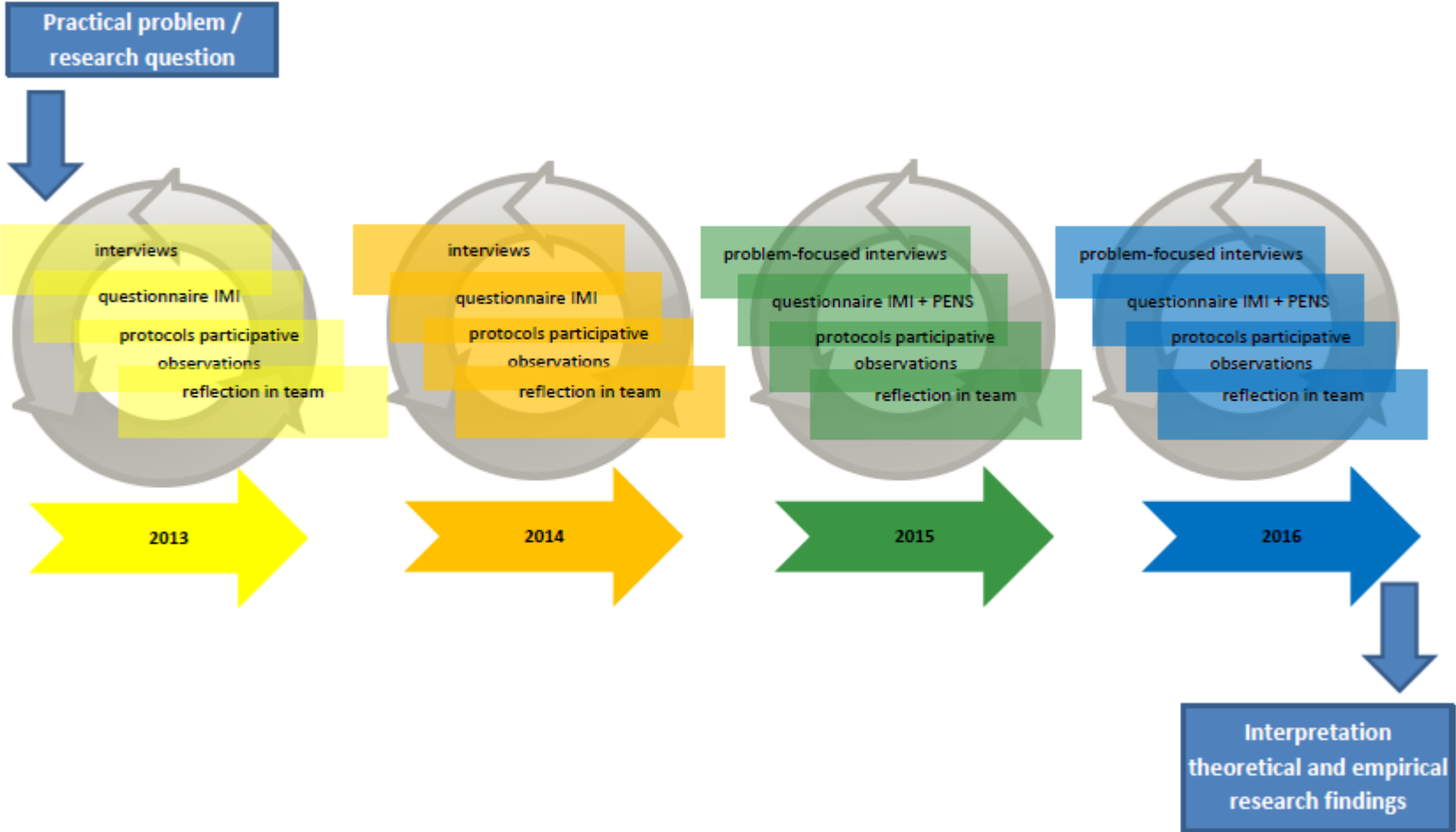
Perception

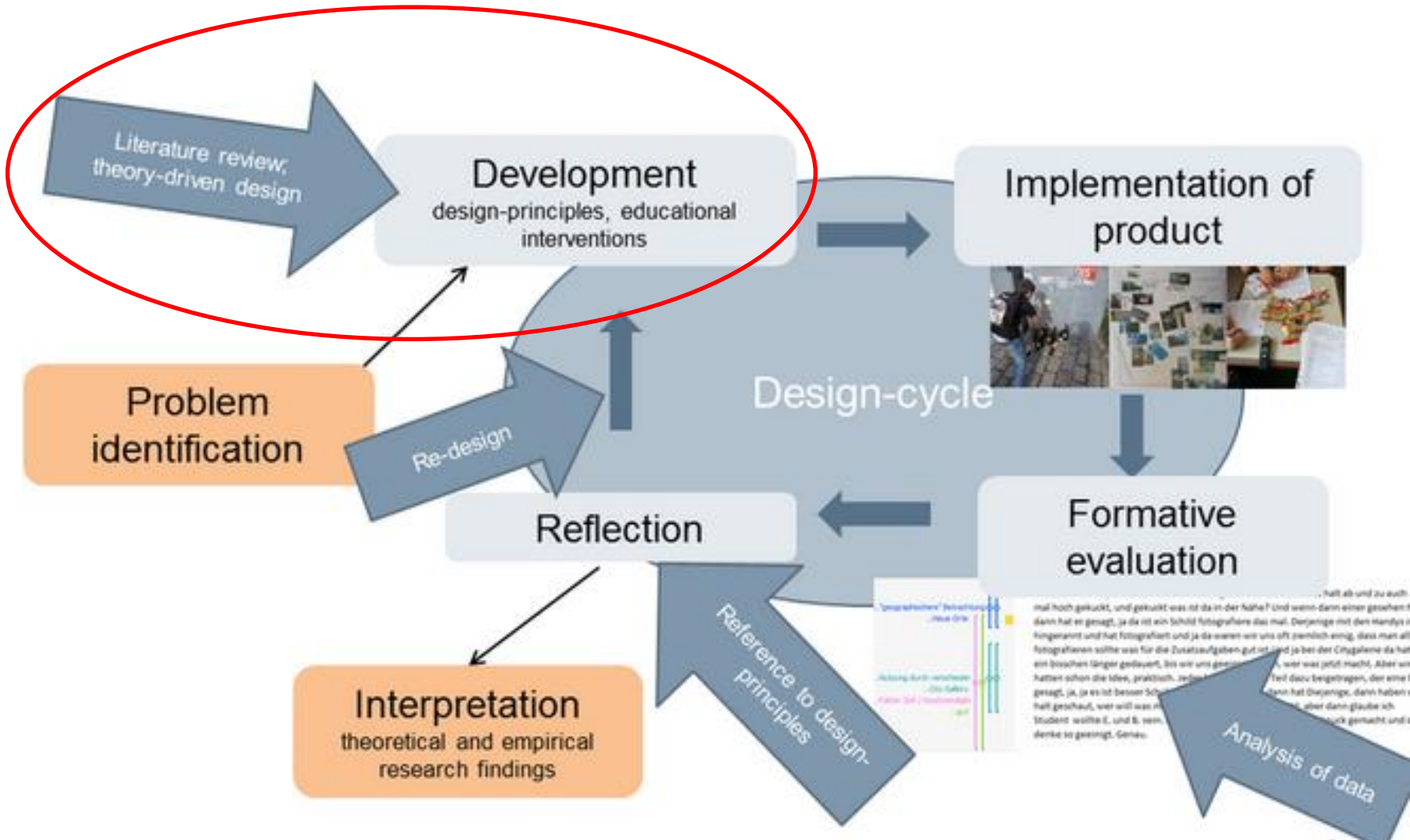
Which tasks encourage students to involve themselves (most intensively) with their surrounding environment?

Intrinsic motivation

Which factors provide a promising setting for students to gain a high degree of intrinsic motivation?

Design-cycle - accompanying research

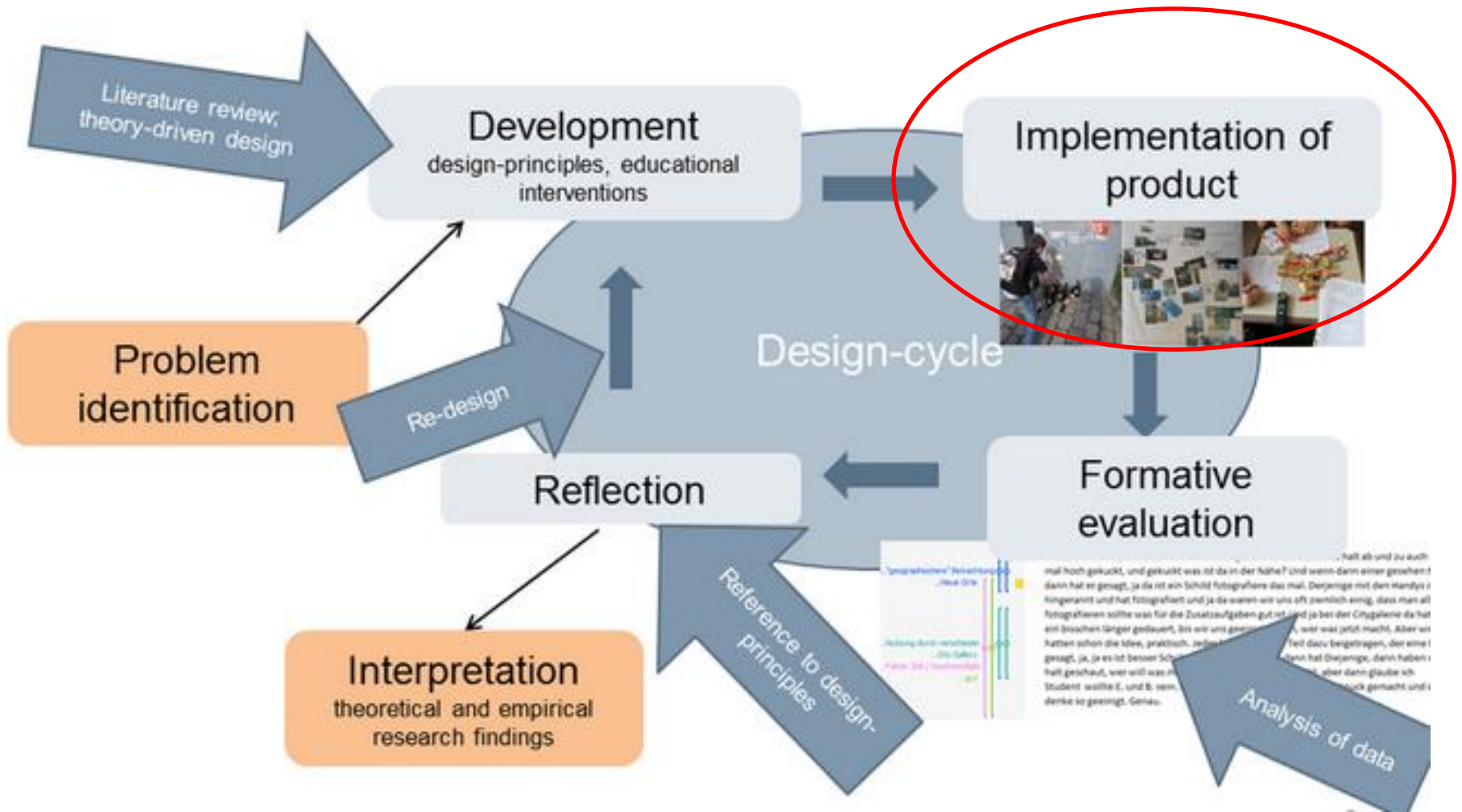




*Tasks that lead to a **change in perspective** can raise the awareness that the perception of space is a subjective and selective process.*

(with reference to Röll 2014 et al.)

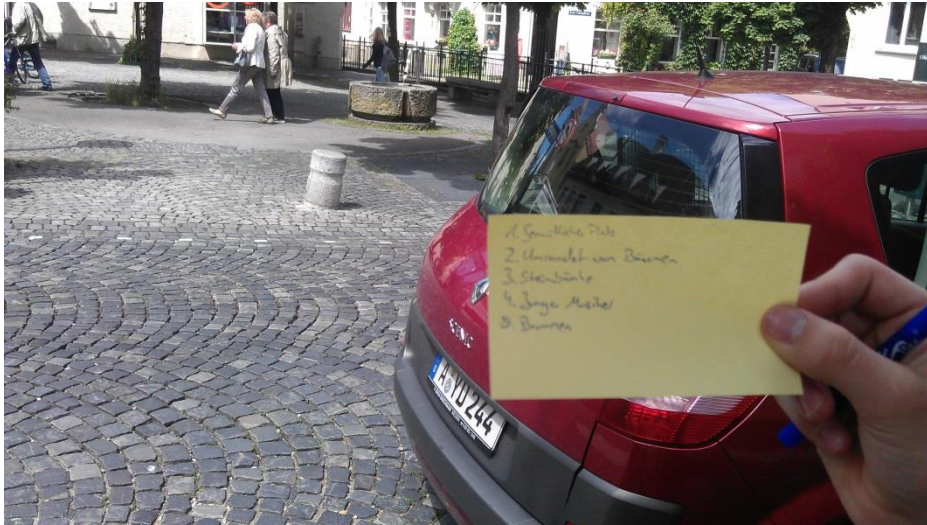


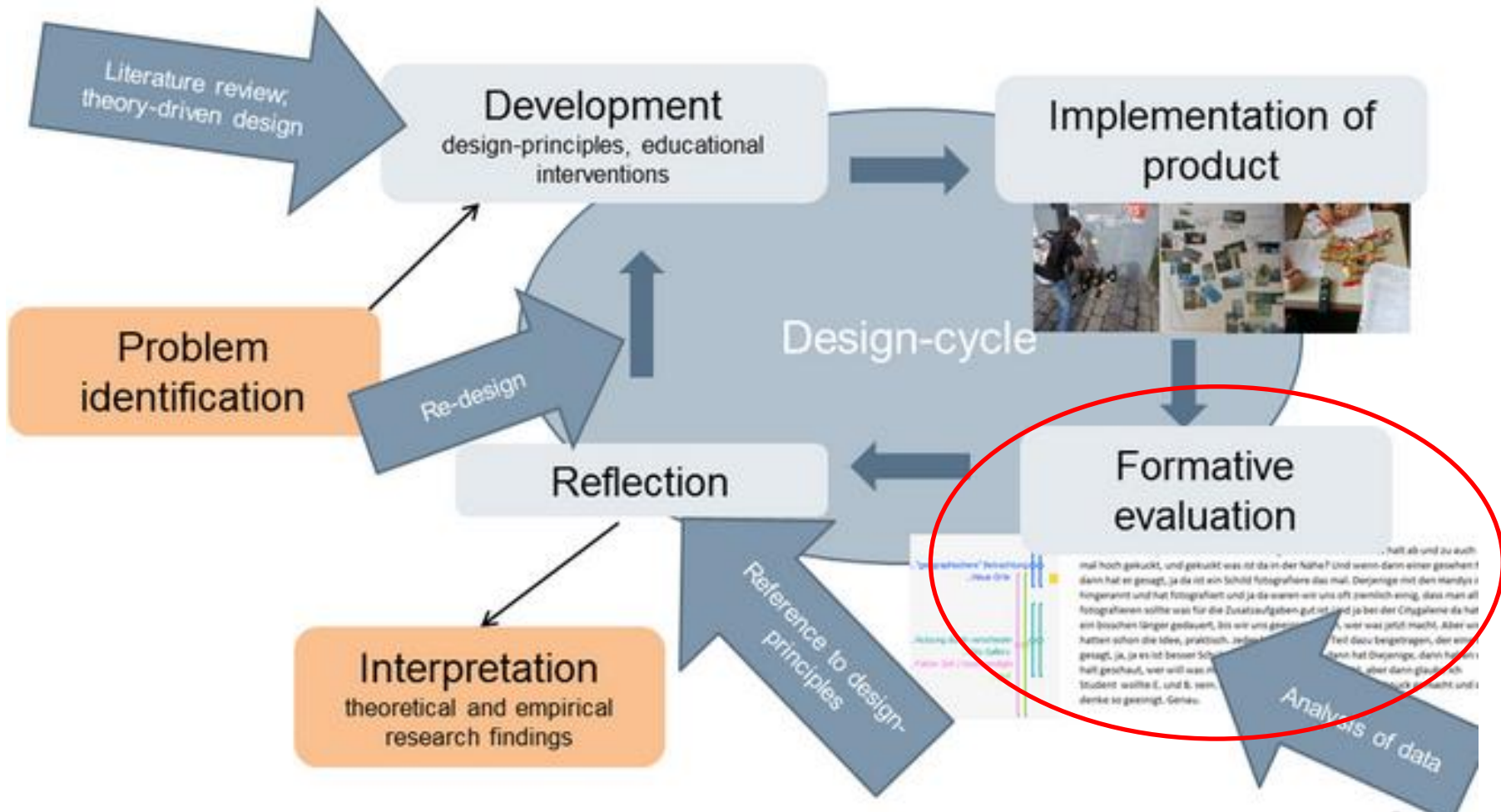


Research framework



Erklären:
1. Brunnen 5. Bach
2. Bäume
3. Bänke
4. Pflanzen





“In our picture you can see a retired person who is watching a street musician, a schoolboy who is playing on his mobile phone, a university student who is standing around waiting for his next lesson or maybe quickly buying some food, families who are having lunch at McDonald’s. All sorts of things. Or just young people who go shopping and then come back with full shopping bags.”

“... we tried to describe it in a way so that the blind person is really able to experience the beauty of this place. For example the smell of the plants, the trees that grow there, the wind that hisses through the trees.”

Design principles

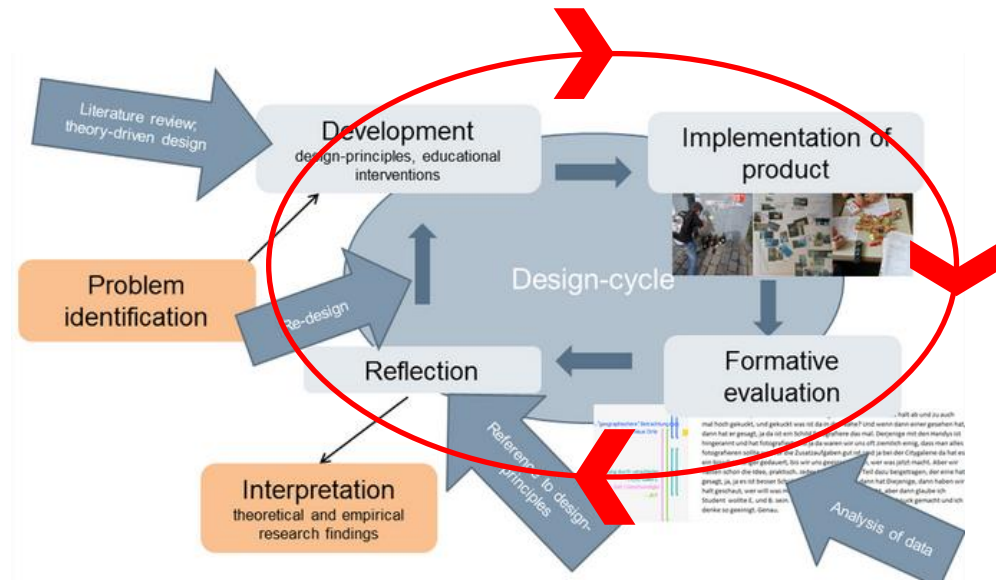
Geogames can raise the awareness that the perception of space is a subjective and selective process if ...

- *... the attention is drawn to specific aspects (through tasks)*
- *... tasks lead to a change in perspective*
- *... these aspects become clear through a phase of reflection*

Research framework

Research questions

- intrinsic motivation
(autonomy, competence, relatedness, et al.)
- perception of space
(different methods / tasks e.g. “search for traces”, inappropriate behaviour, et al.)



Conclusion

- attention can be drawn to certain aspects
- students gain a more differentiated perception of space (not all tasks equally suitable)
- to transfer that experience to a meta level the phase of the post processing is essential
- motivated students
 - voluntarily engage with their surrounding environment
 - don't seem to mind the interruption of the game flow to perform tasks

Outlook

- analyze the data, re-design the intervention and then test it again in practice
- formulate design principles as a guideline for teachers
- Perception of space and increasing the intrinsic motivation of the learners are the primary objectives in my research
- learn more about the effects of learning with Geogames
- put focus on other research objectives (e.g. orientation in real space)

Thank you...

... for your attention!

... for any questions, suggestions and comments!



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