Development of open educational ecosystems in Switzerland: pedagogical, didactical and institutional prerequisites

Exposé of a cumulative doctoral project

DELFI 2020

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Overview

1. Background and Goal
   Assumptions and Main Goal | Research Questions

2. 3-Level-Approach
   Overview | Method | Results

3. Macro Level
   Development Stages

4. Meso Level
   Institutional Levers

5. Micro Level
   i-MOOC Project | Studies and Results
Background and Goal | Assumptions and Main Goal

Basic Assumptions

1) Digital innovations contain huge potential to create better learning settings and processes [6|7]
2) Digital innovations in education only slowly enter real world classrooms [28]

Main Goal

Bridge the gap between digital innovations in educational research and real-world classrooms.

Further Assumptions

To use the potential of digital innovations in education we require open educational networks [25]

Institutional changes are needed to bridge the gap [25]

Many teachers still struggle to competently deal with digital learning settings [8]
Background and Goal | Research Questions

**Main Goal**

Bridge the gap between digital innovations in educational research and real-world classrooms.

- **How can we bridge the gap between digital innovations in educational research and real-world classrooms?**

**The Vision**

Which development stages should we follow?

**The Strategy**

How can we facilitate the needed institutional change?

**The Measures**

How can we design open learning settings?

How can we build teachers’ competences?

How can we build open learning networks?

**Main RQ**

- **How can we bridge the gap between digital innovations in educational research and real-world classrooms?**

**RQ1**

- **Which development stages should we follow?**

**RQ2**

- **How can we facilitate the needed institutional change?**

**RQ3.1**

**RQ3.2**

**RQ3.3**

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## 3-Level-Approach | Overview

| Macro | RQ1: Development Stages  
*Defining the Vision* |
| Meso | RQ2: Institutional Levers  
*Defining the Strategy* |
| Micro | RQ3: i-MOOC Project  
*Defining and Taking Measures* |

**Micro to Macro:** Impact Study  
*re*Assessing Measures, Strategy and Vision
Phase 1: Analysis & Exploration
Investigation of context and literature analysis

Phase 2: Design & (re)Construction
Conjecture map and i-MOOC

Phase 3: Evaluation & Reflection
Iteration of implementation and analysis

MOOC DATA ANALYSIS
Participation and competences

INTERVIEWS WITH i-MOOC TEACHERS
i-MOOC analysis and feedback

IMPACT STUDY
Feedback & reflection

Development Stages
Macro
INSTITUTIONAL LEVERS
Meso
MOOC DEVELOPMENT
Micro

IMPROVED THEORETICAL UNDERSTANDING
MOOC Design
Educational Networks
Institutional Levers

MATURING INTERVENTION
i-MOOC

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Focus of the dissertation: How to bridge the gap?

Current state in most classrooms:
digital education mainly informal and in separate domains, static organizational structures for educational processes, large scale governance without system-level integration

Current state of educational research:
digital sovereignty as main goal of digital education, new logics to organize integrated learning in a legally protected digital education space, eGovernment

Individualized and personal development in newly organized society, personalized and intelligent learning in ecosystems with certified network partners, smart government

Seufert, Guggemos & Moser, 2019 [25]
Institutional Levers

1. Increase **interaction and cooperation** with other organizations and actors.
2. Combine the current and the new **logic** to facilitate the acceptance.
3. Develop **good practice examples** following the new logic to make it available.
4. Create **artefacts**, e.g., papers, guidelines, online courses that are easily understandable in order to spread the ideas further.
5. Align the **education** and thereby the socialization of future professionals.

**General Strategy = Bottom-Up Approach** [6|7]
...due to the highly institutionalized environment in education [18|28]
Massive Open Online Course to foster Information Literacy
for: High School Students in Switzerland (Sekundarstufe II)

Foster Information Literacy
Science Communication

2019-2020

>1800  Students
>600   Completed
37     Schools
56     Teachers
102    Classes
Micro Level | Studies and Results

Design and improvement of the i-MOOC by means of conjecture mapping

- Conjecture Map (adaption of design principles)
- Efficiency and support decisive for acceptance
- Active role of teacher as main influence for learning outcome

*Measures: Objective IL, Subjective IL, Feedback, Interviews with 16 teachers*

Fostering teachers’ digital competences

- Support setting to foster experiential learning
- Close support of teachers decisive to reduce fears
- Teachers and researchers benefit from learning network (community)

*Measures: Interviews with 16 teachers*

Mobile augmented reality (MAR) design principles for education

- Literature reviews on effects of MAR in education and design principles
- Usability, User centredness, Basic learning theories, Conscious application, Cognitive overload

*Measures: Literature reviews*
Makro Level: Development Stages
√ ZFHE19: Zieldefinition und Weg zum Ziel (Journal)

Meso Level: Institutional Levers
√ EARLI 2020: Identification of Obstacles and Levers (Presentation) + × Tested and improved Levers

Mikro Level: Learning Designs
√ VET19: Design of the i-MOOC (Presentation)
√ LTEC19 (EDR I): Design of the i-MOOC (Proceedings)
(√) IJLT20 (EDR II): Improvement of the i-MOOC (Journal)
(√) ZuS20: Competence Building of Teachers (Proceedings)
(√) CELDA20: Mobile Augmented Reality Design Principles
× IMPACT STUDY

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√ DELL'20
Further Work | in progress ...

- High School MOOC Use Principles
- Refinement of Levers
- Impact Study
- Institutional Requirements
References (1/2)

References (2/2)