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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

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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

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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.

Futher 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]

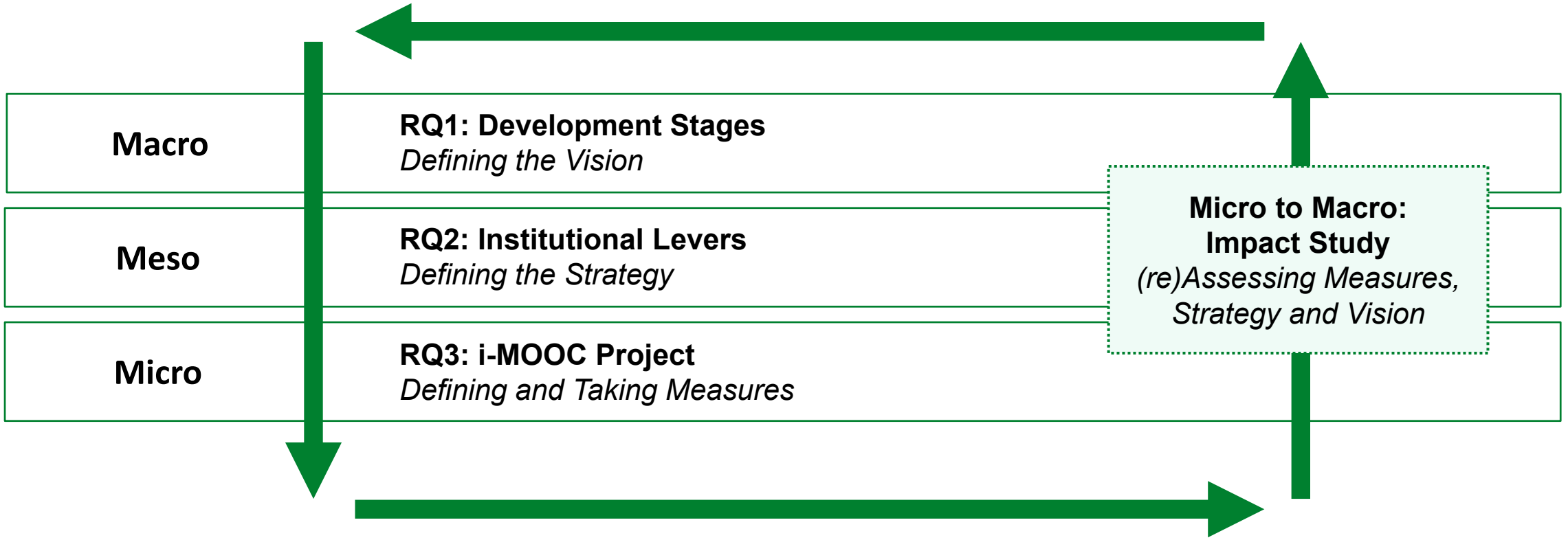
Many **teachers still struggle** to competently deal with digital learning settings [8]

Background and Goal| Research Questions

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Main Goal	**Bridge the gap** between digital innovations in educational research and real-world classrooms.
Main RQ	How can we bridge the gap between digital innovations in educational research and real-world classrooms?
RQ1	**The Vision** Which development stages should we follow?
RQ2	**The Strategy** How can we facilitate the needed institutional change?
RQ3.1 **RQ3.2** **RQ3.3**	**The Measures** How can we design open learning settings? How can we build teachers' competences? How can we build open learning networks?

3-Level-Approach| Overview



3-Level-Approach| Method: Educational Design Research [14|26]

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Implementation and Spread

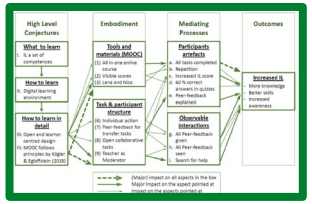
Phase 1
Analysis & Exploration
Investigation of context and literature analysis

DEVELOPMENT STAGES
Macro

INSTITUTIONAL LEVERS
Meso

MOOC DEVELOPMENT
Micro

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



MOOC

MOOC
zum Aufbau von Informationskompetenz

MOOC
als Einführung ins Schreiben von Schularbeiten

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

MATURING INTERVENTION
i-MOOC

MOOC

IMPROVED THEORETICAL UNDERSTANDING
MOOC Design
Educational Networks
Institutional Levers

Macro Level| Development Stages

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Focus of the dissertation: How to bridge the gap?

Current state in most classrooms

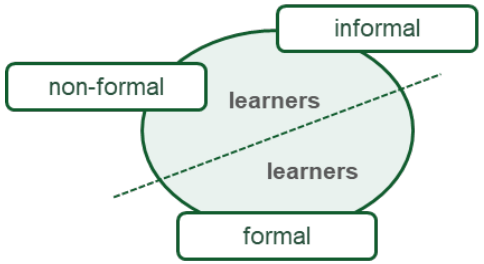
Current state of educational research

digital education mainly informal and in seperate domains, static organizational structures for educational processes, large scale governance without system-level integration

digital souverenty as main goal of digital education, new logics to organize integrated learning in a legally protected digital education space, eGovernment

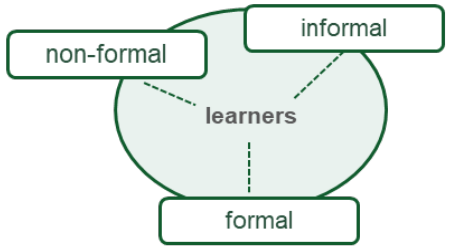
Individualized and personal development in newly organized society, personalized and intelligent learning in ecosystems with certified network partners, smart government

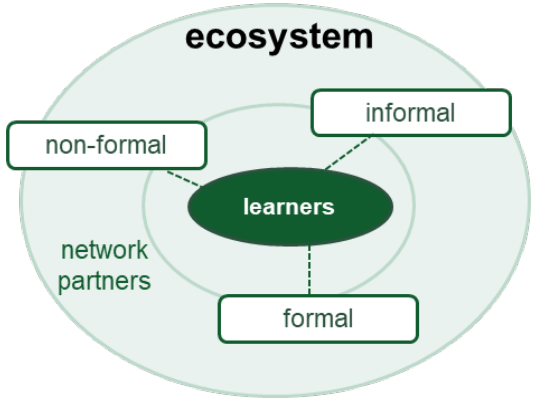
education outside universities



education in universities

legally protected digital education space





ZFHE Zeitschrift für Hochschulentwicklung

Seufert, Guggemos & Moser, 2019 [25]

Meso Level| Institutional Levers

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General Strategy = Bottom-Up Approach [6|7]

…due to the highly institutionalized environment in education [18|28]

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.

Earli SIG 6-7 Meeting

Moser, Seufert & Guggemos, 2020 [18]

Micro Level | i-MOOC Project



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

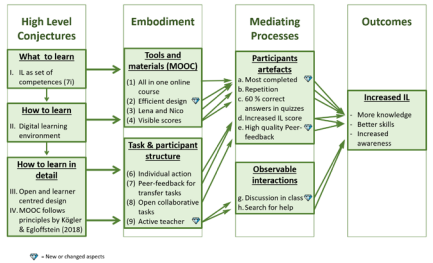
Micro Level | Studies and Results

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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: Ojective IL, Subjective IL, Feedback, Interviews with 16 teachers





Moser, Guggemos & Seufert, 2020 [17]

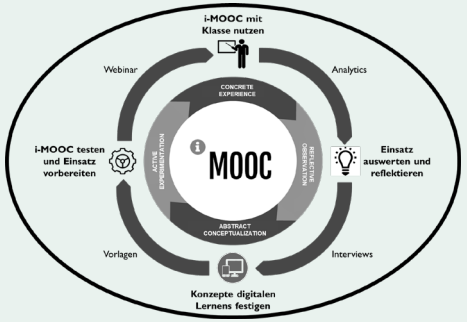


Seufert, Guggemos & Moser, 2019 [24]

Fostering teachers' digital competences

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

Measures: Interviews with 16 teachers





Moser, Seufert & Guggemos, 2020 [19]

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

Table 1. Seven metastudies on MAR in education

Metastudy	No of Analyzed Studies	Years of Analyzed Studies
(Akçayır and Akçayır, 2017)	68	2007 – 2015
(Altinpulluk, 2019)	58	2006 – 2016
(Chen et al., 2017)	55	2011 – 2016
(Garzón et al., 2019)	61	2012 – 2018
(Quintero et al., 2019)	50	2008 – 2018
(Sommerauer and Müller, 2018)	36	2010 – 2017
(Yuliono et al., 2018)	18	2009 – 2018



Moser, 2020 [16]

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Cumulative Dissertation

Development of open educational ecosystems in Switzerland

pedagogical, didactical and institutional prerequisites

√ DELFI20

Makro Level: Development Stages

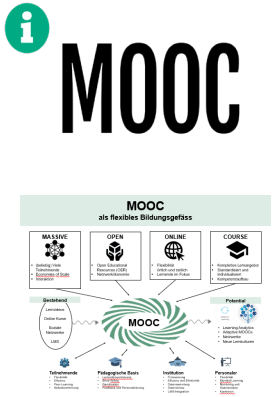
√ ZFHE19: Zieldefinition und Weg zum Ziel (Journal)

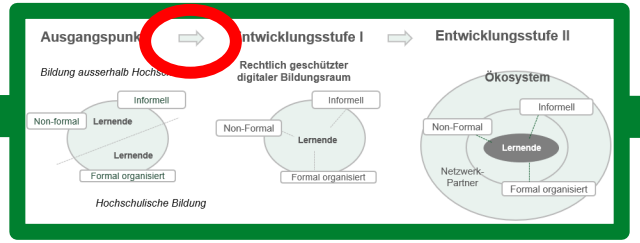
Meso Level: Institutional Levers

√ EARLI 2020: Identification of Obstacles and Levers (Presentation) + x **Tested and improved Levers**

Mikro Level: Learning Designs

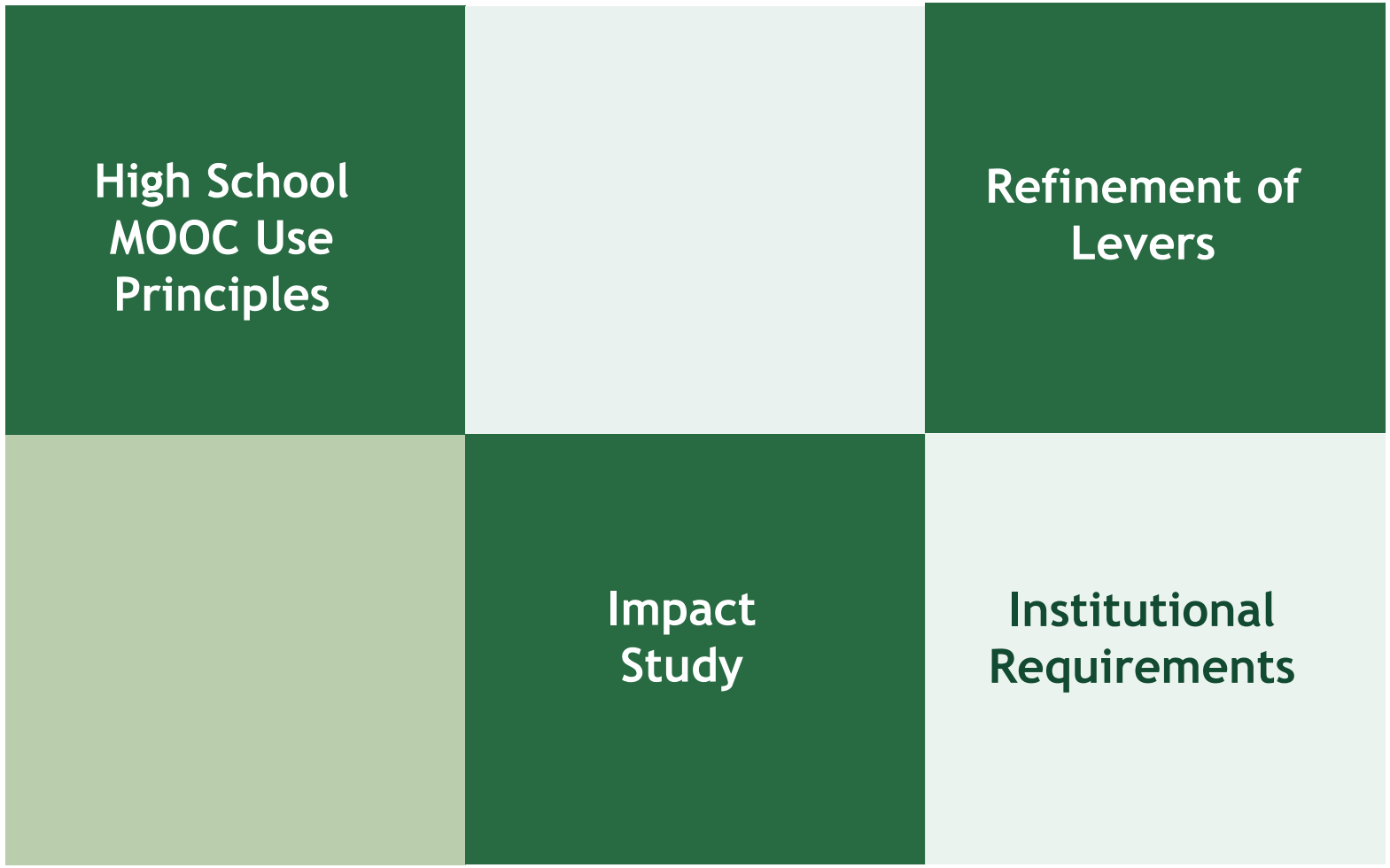
√ VET19: Design of the i-MOOC (Presentation)
√ LTEC19 (EDR I): Design of the i-MOOC (Proceedings)
(√) IJLT20 (EDR II): Improvement of the i-MOOC (Journal)
(√) ZuS20: Competence Building of Teachers (Proceedings)
(√) CELDA20: Mobile Augmented Reality Design Principles
x **IMPACT STUDY**





Further Work| in progress …

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