Internationalization Processes for Open Educational Resources

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Problem Statement

- What are the processes and influence factors when internationalizing systems…?
- How to test and validate influence factors?
- How to embed those in process models?

- Sample Domain
  - Knowledge Intensive Systems
  - Open Educational Resources

Open Educational Resources…

GLOBE

COSMOS
An Advanced Scientific Repository for Science Teaching and Learning

MERLOT
Multimedia Educational Resource for Learning and Online Teaching

iCOPER

ARIADNE

OpenScout

ASPECT

EducaNext 2.1

OPEN Content Alliance

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OER: Concepts

- Definitions:
  - Technology-enabled, open provision of educational resources for consultation, use and adaptation by a community of users for non-commercial purposes". (UNESCO, 2002)
  - But: Commercial purposes shall not be excluded

→ **Any digital object which can be freely accessed and used for educational purposes**

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Variety of OER…

- **Resources:**
  - *learning objects* (specific digital objects created for learning purposes)
  - multimedia documents, simulations but also simple html web resources.
- **Articles, textbooks and digital equivalents:**
  - articles, papers, books or journals
  - Open Access
- **Software tools**
  - producing / authoring learning resources, communication and collaboration.
  - Open Source or Free Software
- **Instructional / didactical designs and experiences**
  - access to instructional designs, didactical plannings
  - such as lesson plans, case studies or curricula
  - sharing experiences about materials and lessons between colleagues
  - Open Educational Practices.
- **Web assets:**
  - simple resources (assets)
  - pictures, links, or short texts
  - not usable on their own in a learning context but can be used to support or illustrate a certain topic
  - found by google or similar search engines.

Sample contents

- OpenScout
  - http://www.openscout.net
- Mace Project (technology base)
  - http://www.mace-project.eu
- ITunes University
  - http://www.apple.com/education/itunes-u/
- OpenLearn (Open University UK)
  - http://openlearn.open.ac.uk/
- Globe Network (Federation)
  - http://www.globe-info.org/
- Ariadne Foundation (Europe)
  - http://www.ariadne-eu.org/

Internationalization and OER

- Internationalization impacts the work in knowledge-intensive organizations dramatically
- Important factor for educational institutions and their stakeholders
- The role of OER in internationalization process can be considerable
  - Using shared resources in collaborative teaching
  - Re-use and adaptation of materials in international settings
  - Export of study programs, resources and services

- Exemplary problem of internationalization of systems

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Motivation for study

- Various initiatives opening resources to public
- Re-use possible through open licenses

But still…

- The process to use, share and adapt resources is not clearly structured or well established
- We aim at developing a basic process model to structure the content internationalization process

  Identifying:

  – key influence factors
  – Main activities

"How to structure internationalization activities using open educational resources?"

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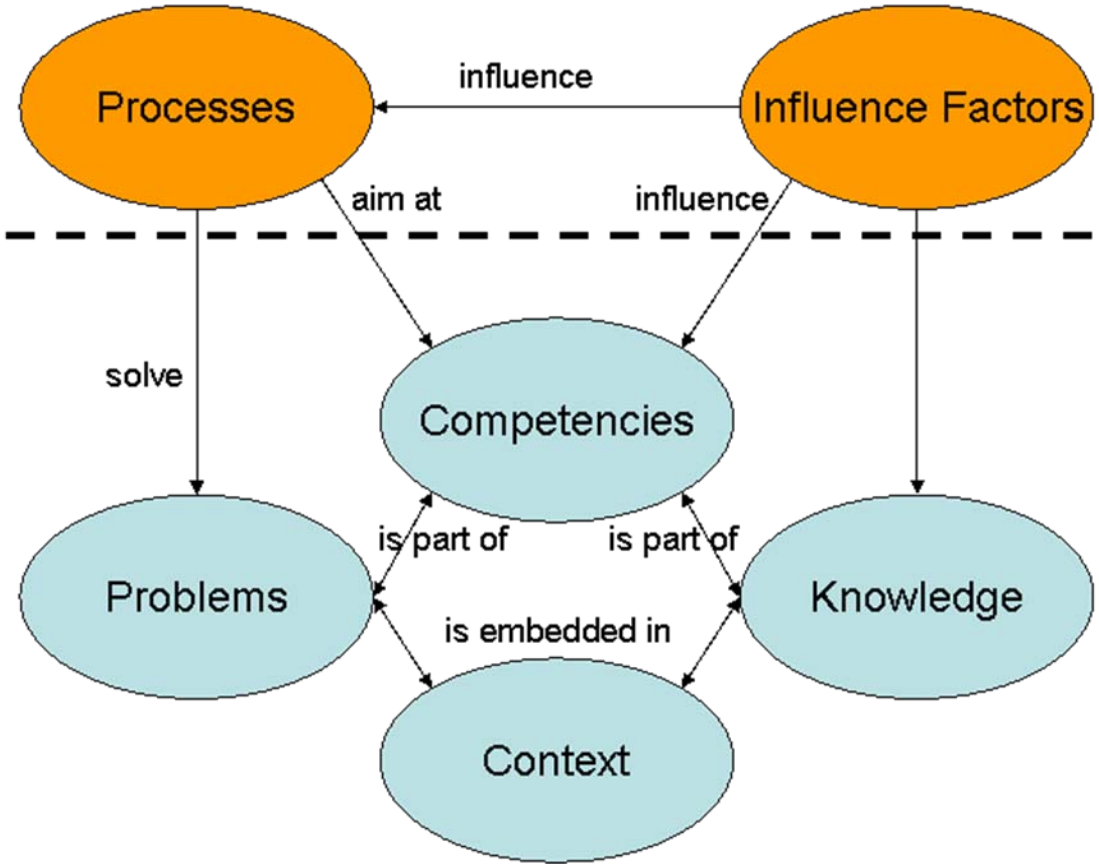
Research focus and dependencies



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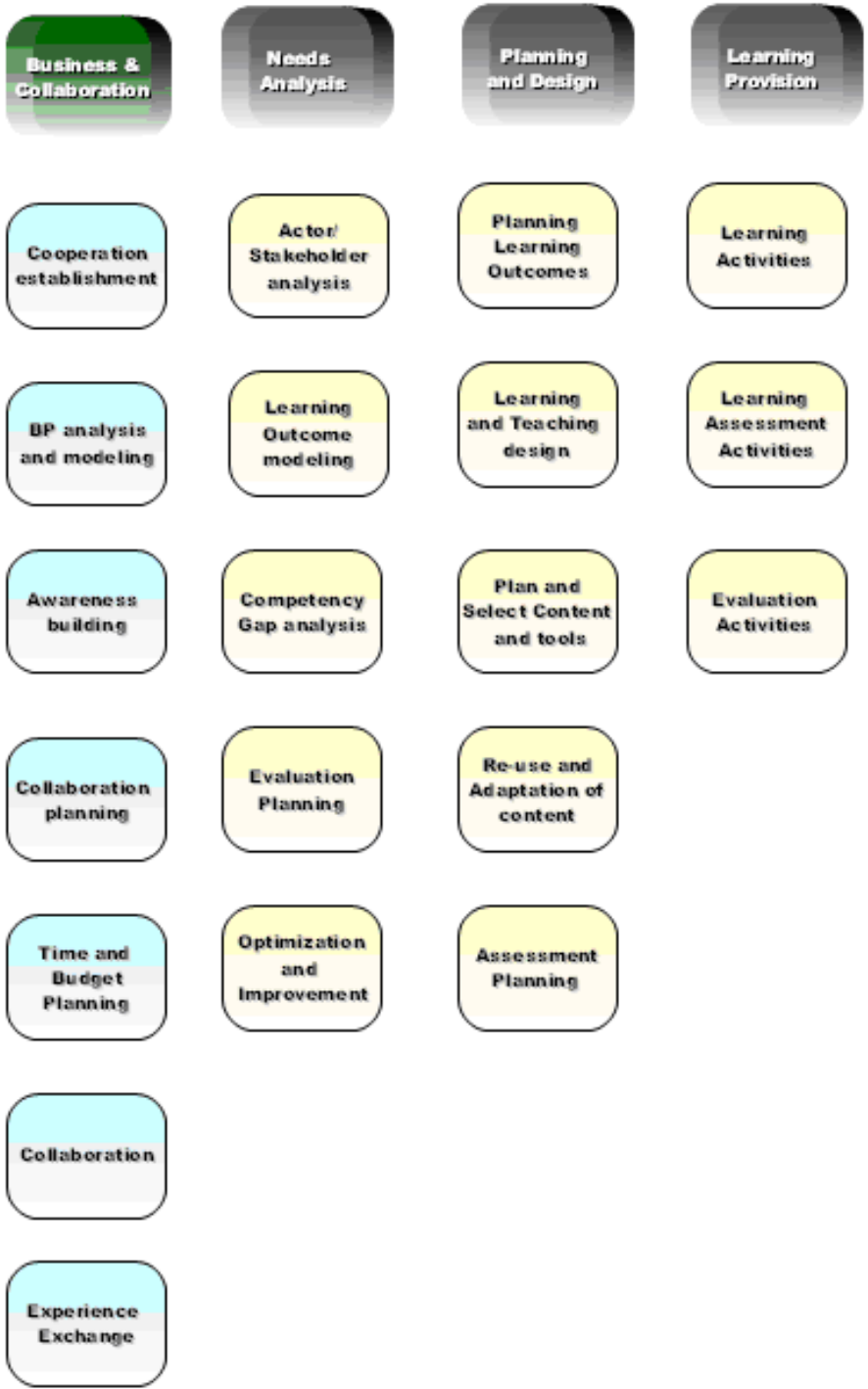
General OER-model



Pirkkalainen (2010)

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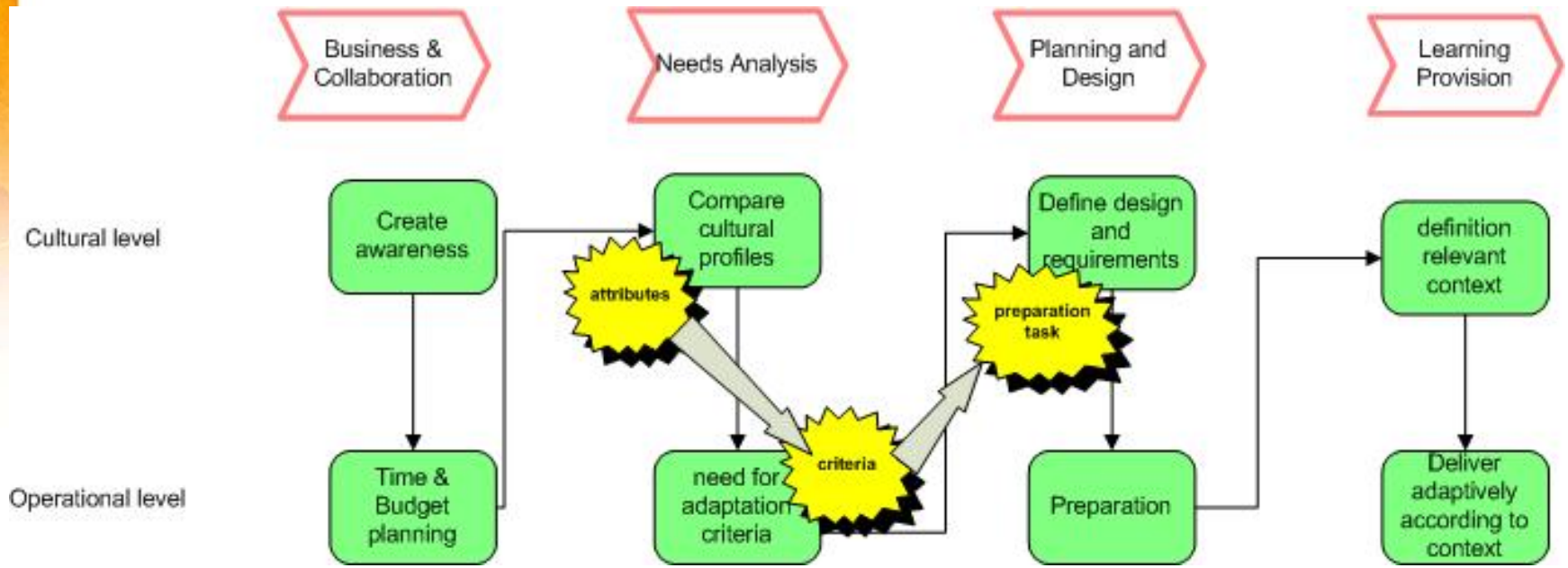
Process example

- OER process model refined for internationalization purposes
- Possible flow of actions resulting to content adaptation and delivery



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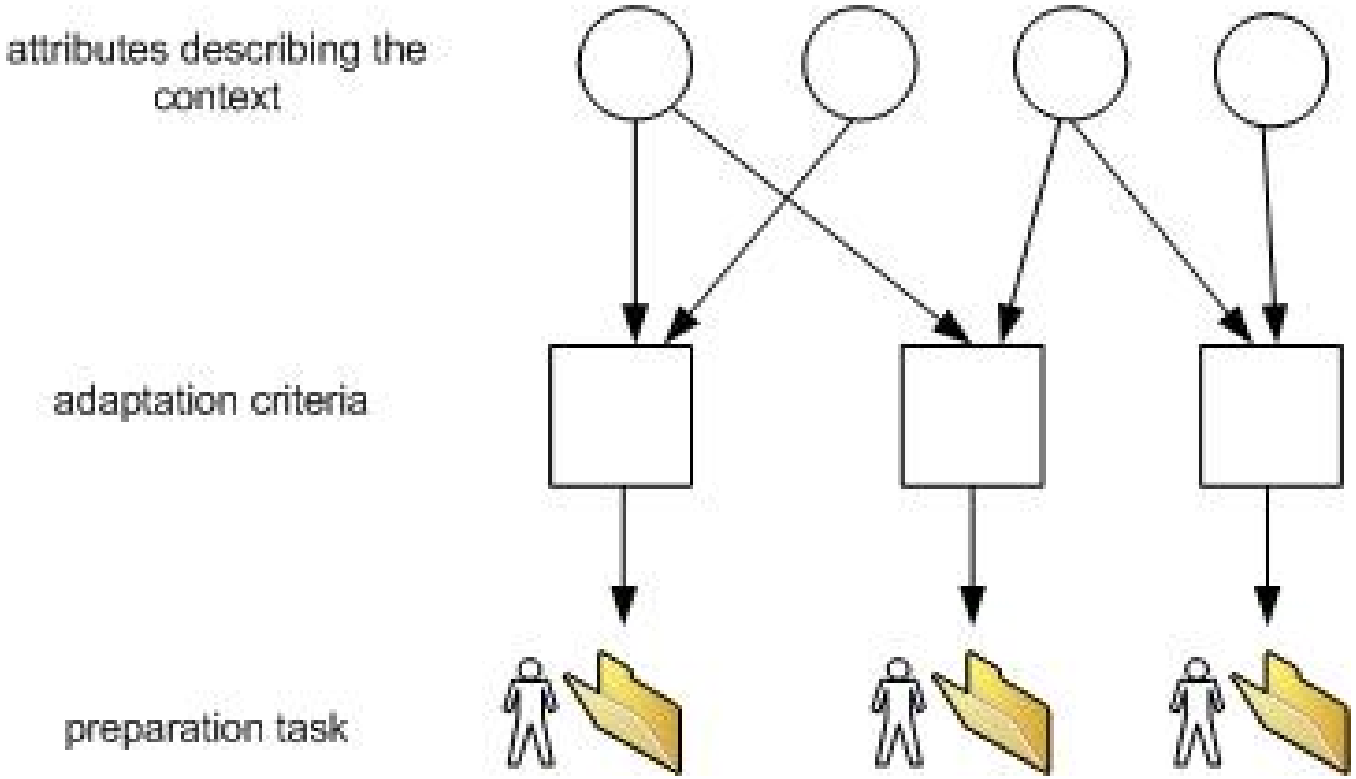
Adaptation Factors (Thalmann, 2011)

	size	complexity	experience	tool support	quality	reuse
previous knowledge	++	++	--	-	++	-
user request	++	++	--	--	++	-
content pref.	++	++	--	-	++	--
didactical approach	++	++	--	-	++	--
language	++	++	--	--	++	--
location	++	++	--	-	++	--
user status	+	++	--	--	++	-
knowledge structure	+	++	--	--	++	--
user history	+	++	--	--	++	-
presentation pref.	+	++	--	--	++	--
pref. for media types	+	++	-	--	++	-
device requirements	+	++	-	--	++	-
bandwidth	+	++	-	--	++	-

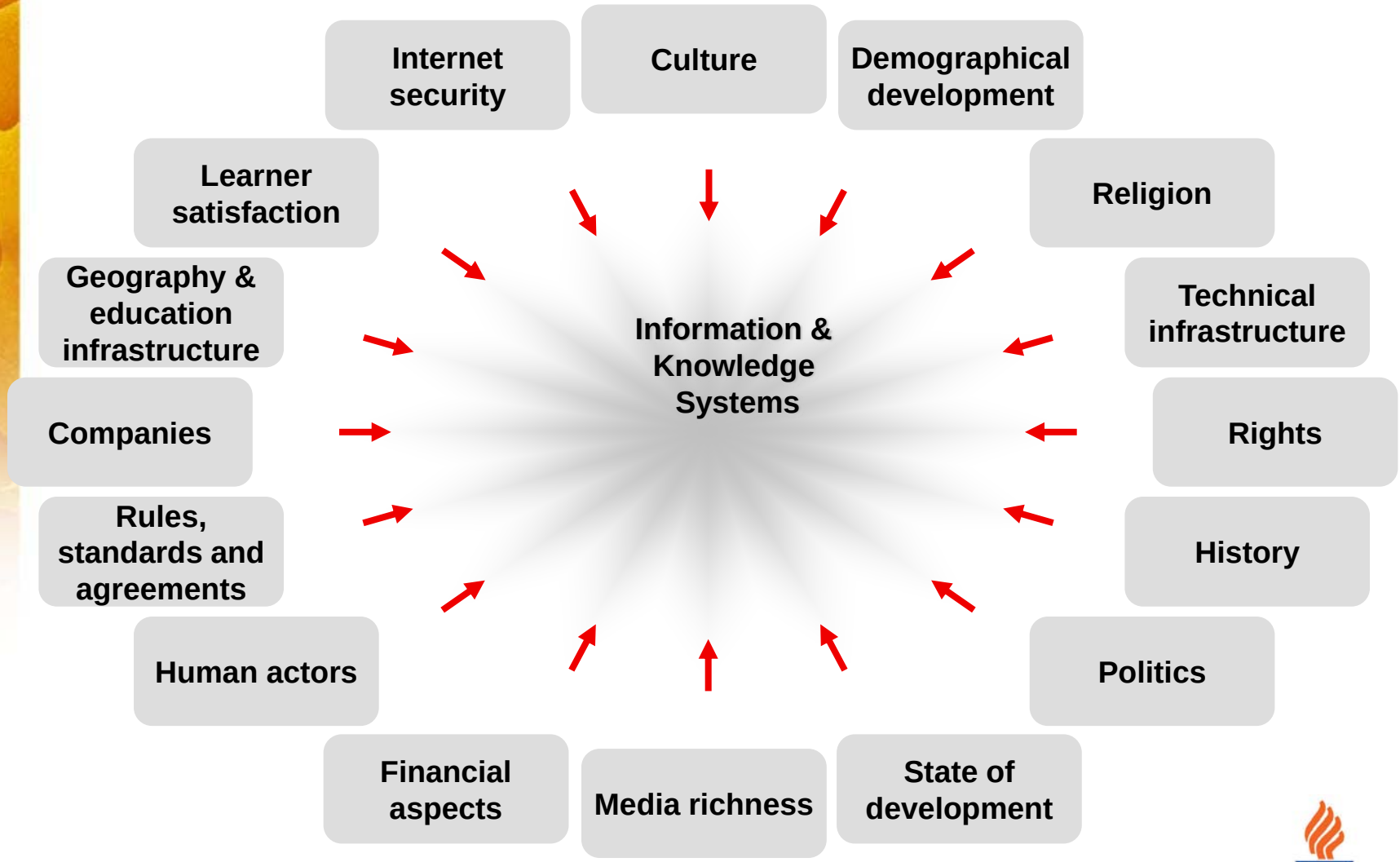
Relationship of the factors

Mapping the contextual factors to the adaptation criteria is crucial



Potential additional factors? Global factors?

Context Metadata (Pawlowski, Richter, 2008)



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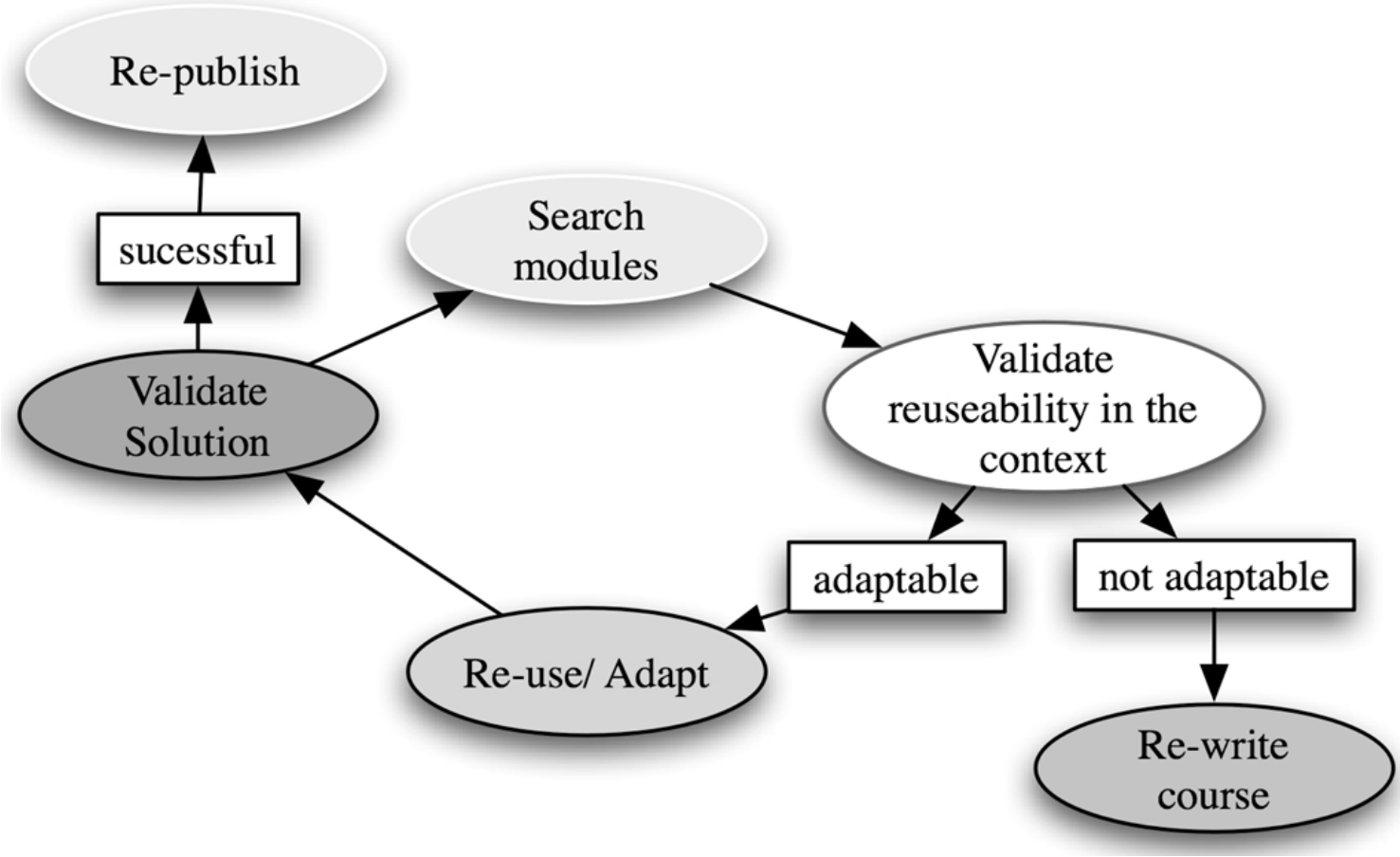
Assumptions and previous research

- Many culture representation models cannot be used for adaptation and design decisions
- Level of abstraction / granularity
- Metadata model is adequate and can be included in (automatic) adaptation

- BUT: How can we derive and validate attributes and value spaces?
- How to incorporate and validate additional factors?

Adaptation process (Pawlowski, Richter, 2008)



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Test methodology (Pawlowski, Richter, 2008)

- Phases
  - Exploration
  - Qualitative tests in various setting
  - Validation
  - Quantitative analysis
  - Derive rules
  - Use as decision/adaptation support / Pre-test
- Case study
  - E-Learning in Higher Education
  - Questionnaires in Germany, Finland and Korea
  - Experiments in university settings

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Test methodology (Pawlowski, Richter, 2008)

- **Test class 1:** How far are students able to apply learned methods to problems? - 4 test cases -
- **Test class 2:** Do language styles influence the depth of understanding? - 2 test cases -
- **Test class 3:** Do the students in each group simply memorize information or do they try to reflect it? How do they deal with unused presentations of contents? - 1 test case -
- **Test class 4:** How do the students build groups and which structure can be monitored within the groups? - 1 test case -
- **Test class 5:** How is collaborative group work practiced? What is the output? - 1 test case -
- **Test class 6:** What kind of feedback is preferred and how do the students react on different kinds of feedback? - 1 test case -

Test methodology (Pawlowski, Richter, 2008)

- **Test class 7:** Do the concepts of guilt and shame (west / east) have influence on the willingness to accept plagiarism as task-solution? - 3 test cases -
- **Test class 8:** How is the relationship to authorities and do students put the learned contents into question? - 2 test cases -
- **Test class 9:** What kind of working style do the students have and how do they react on uncertainties? - 5 test cases -
- **Test class 10:** Which teaching style is preferred by the students and how do they react when it is not met? - 1 test case -
- **Test class 11:** How do Koran students react when they are confronted with a German examination situation, which includes a lot of conflicting parameters (stress test)? - 1 test case -

Sample test case

- **Test 1:** Strictly use German way to transmit method-knowledge: Do not relate concrete methods to concrete problems
- **Task:** Students have to decide themselves which solution they choose and discuss the decision by evaluating other methods attached to this situation. A single correct decision will not be possible
- **Expected result:** German will solve the task but maybe argument wrong – no conflict; Conflict for Korean because they have to decide which solution is better what maybe means that the teacher taught ineffective methods
- **Evaluation method:** Test - by analyzing the results (do they fit the task, counting numbers of result classes: correct, semi-optimal, wrong, other); questionnaire after-test (experiences of the students – do the Korean students report more difficulties concerning the choice? Result of related questionnaire aspect is Boolean, if more difficulties: yes - else, no)

Some lessons learned

- ✓ Test methodology for (E-)Learning adaptation
- ✓ Providing concrete results to adapt systems
- ✓ Integration in existing courses
- ✓ Low set-up and validation cost
- ✓ Usable for adaptation process and as pre-test

- Limitations and challenges
  - Context-dependency
  - Further aspects
  - Factor inter-relations

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Some more lessons learned…

- Analyze processes when adapting systems
- Derive influence factors from analysis and literature
- Validate, refine and debate influence factors

- Embed internationalization process in everyday-work-processes

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Conclusion

- Created a framework for internationalization projects: processes, attributes, preparation tasks
- Basis for analysis: attributes
- Basis for design and development: processes
- Contribution towards more structured development processes for OER for (semi-) automatic adaptation
- Transferable to other internationalization processes

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Next research steps

- Study and verify these processes (extending)
- Strong focus on the influence factors (context, culture, competencies)

Crucial target:

- Find recommendations and adaptation mechanisms to support re-use in international settings by using OER
  - including organizational aspects (process patterns & guidelines)
  - ICT support aspects (tools and services)
  - integration aspects (standardization)

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- Thalmann, S. (2011): "Decision Support Framework for Selecting Techniques to Prepare Knowledge Elements for Adaptive Use, Dissertation, University of Innsbruck, 2011.
- Pawlowski, J.M., Richter, T. (2008): A Methodology to Compare and Adapt E-Learning in the Global Context, MKWI, Munich, Feb. 2008.

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OER Repositories…

- http://ocw.mit.edu/index.htm
- http://openlearn.open.ac.uk/
- http://www.ariadne-eu.org/
- http://www.learningcommons.org/educators/library/gem.php
- http://www.merlot.org/merlot/index.htm
- http://www.jisc-collections.ac.uk/
- http://wiki.creativecommons.org/Creative_Commons_and_Open_Educational_Resources
- http://opentraining.unesco-ci.org/
- http://portal.mace-project.eu/
- http://www.openscout.net
- http://lreforschools.eun.org/
- http://globe-info.org

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