Developing and Testing a Peer-Review Process for Content Quality Assurance in MOOCs: A Case Study on an E-Assessment Course

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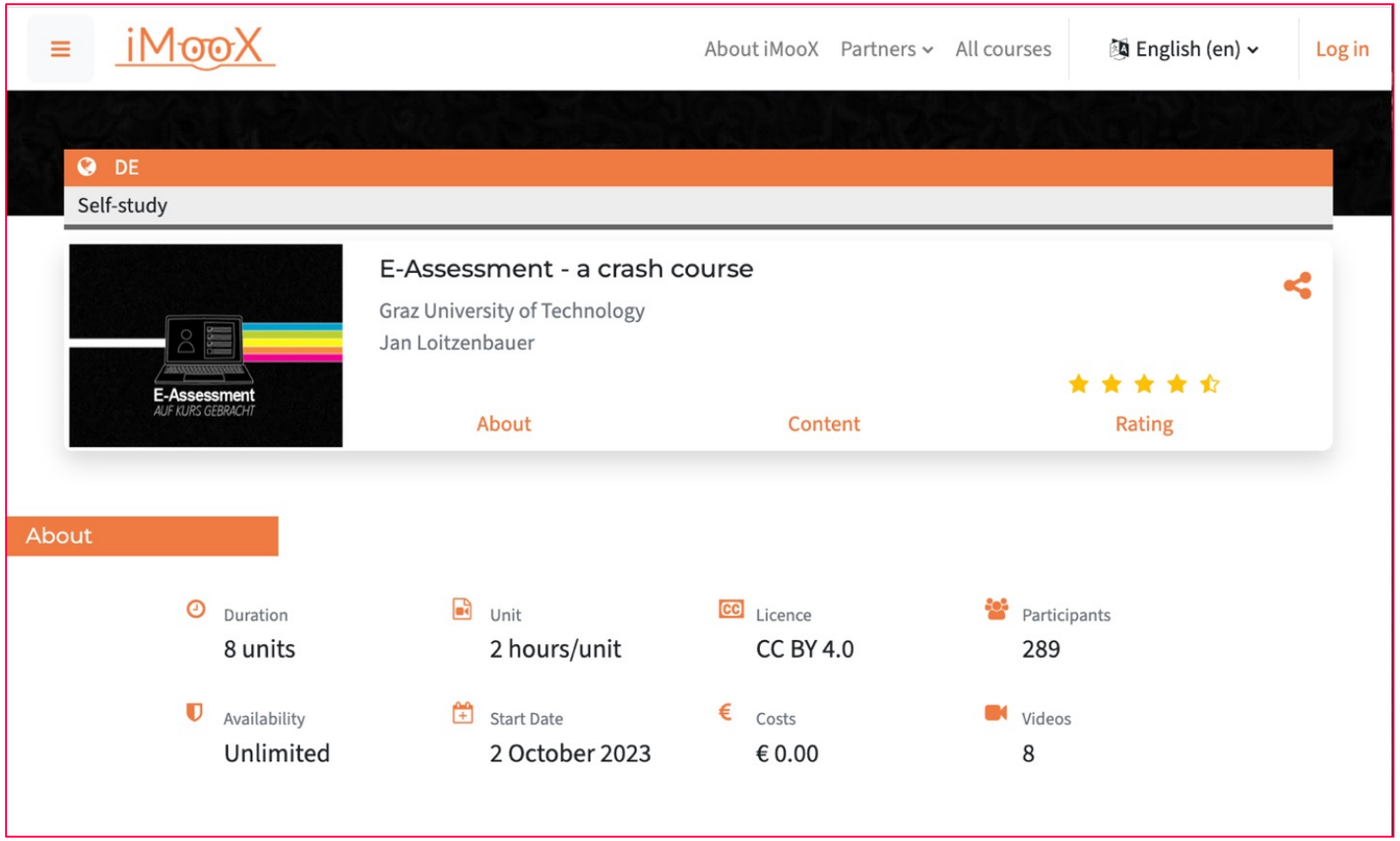
Introduction - Background

- MOOCs (Massive Open Online Courses) have democratized access to education globally
- Challenge: Ensuring content quality in large-scale, diverse instructional designs
- Objective: Develop and test a structured peer-review process for MOOCs

Introduction – Case Study

Course *"E-Assessment -- auf Kurs gebracht"* on the Austrian national MOOC platform iMooX.at

Paper based on a Master Thesis at TU Graz by Jan Loitzenbauer (2024)

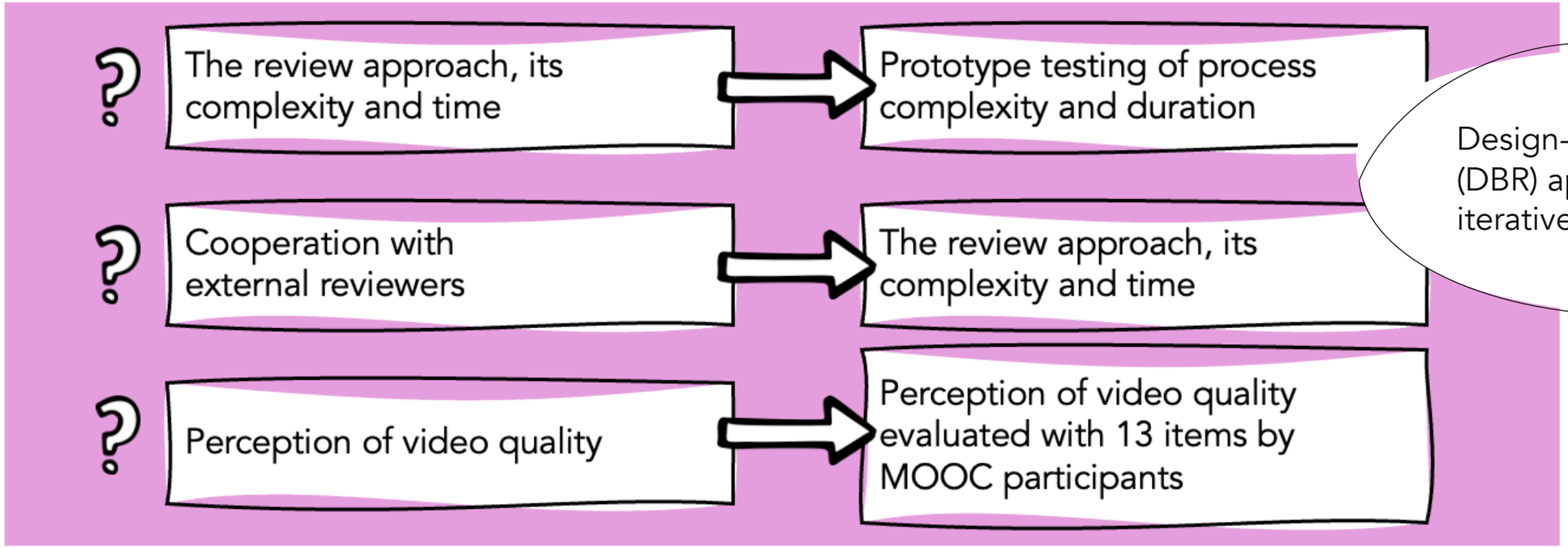


https://imoox.at/mooc/local/landingpage/course.php?shortname=e-assessment&lang=en&redirect=0

Research questions

1. What can be said about the complexity and duration of the quality assurance process in practice?
2. What effects occur in collaboration with external reviewers during the process?
3. How do learners perceive the quality of instructional videos that underwent the review process?

Methodology – Overview



Methodology - Learner feedback

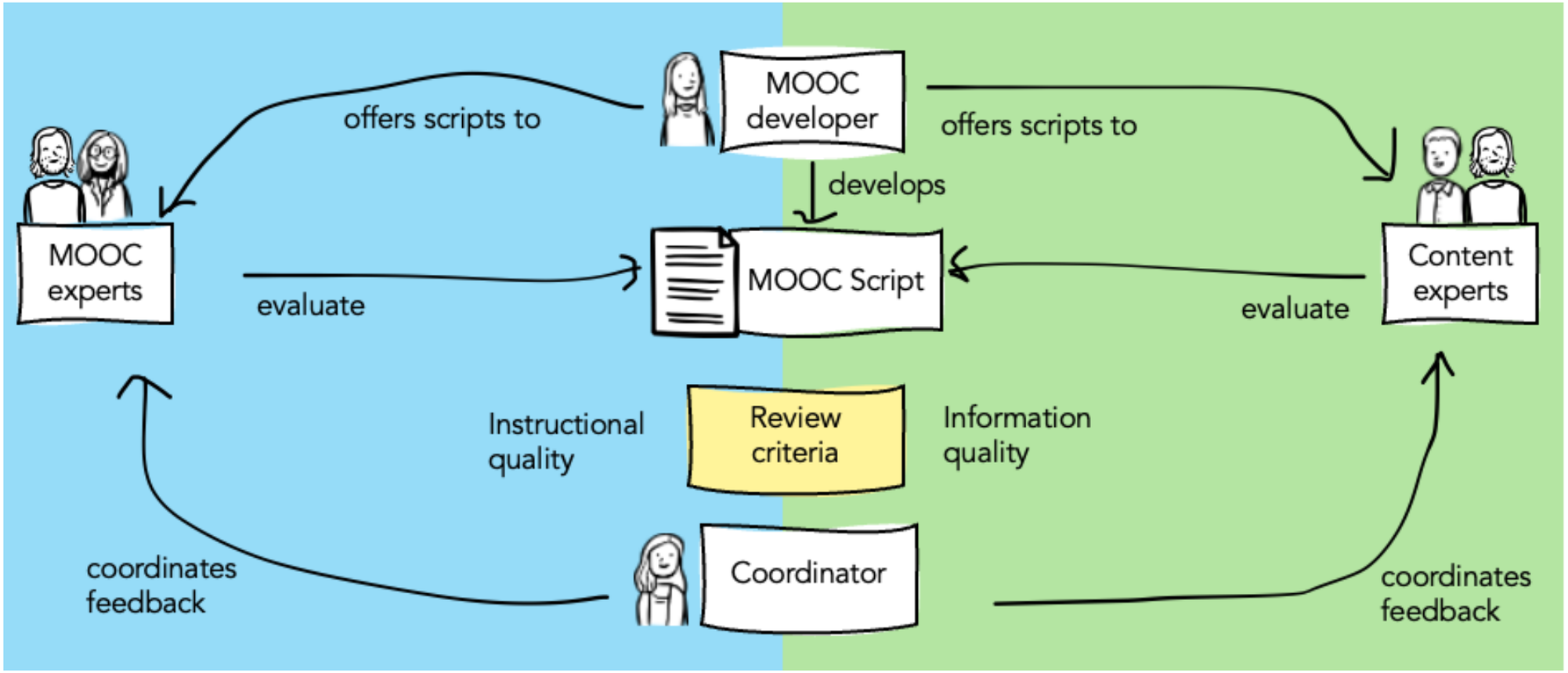
Table 1: Questionnaire. The left column contains 13 statements developed from the quality criteria. The right columns show where each statement is part of the questionnaire, marked with an "X" in the respective lesson.

Statement	1	2	3	4	5	6	7	8
I have great confidence in the accuracy of the content in the video.		X			X		X	
I have great confidence in the timeliness of the content in the video.	X					X		X
I have great confidence in the completeness of the content in the video.	X					X	X	
The content of the video is relevant to me.	X			X				X
The content of the video is coherent.		X	X		X			
The content of the video is structured.			X		X		X	
The content of the video is presented in an understandable way.				X			X	X
The presentation of content in the video is supported by linguistic means.	X							
The content of the video is delivered in an appropriate length.						X		
Graphics and text are easy to read.		X						
The video is visually appealing.		X						
Consistency is maintained in the presentation of content in the video.				X				
The presentation of content in the video is appropriate for the target audience.			X					

13 aspects based on instructional video quality

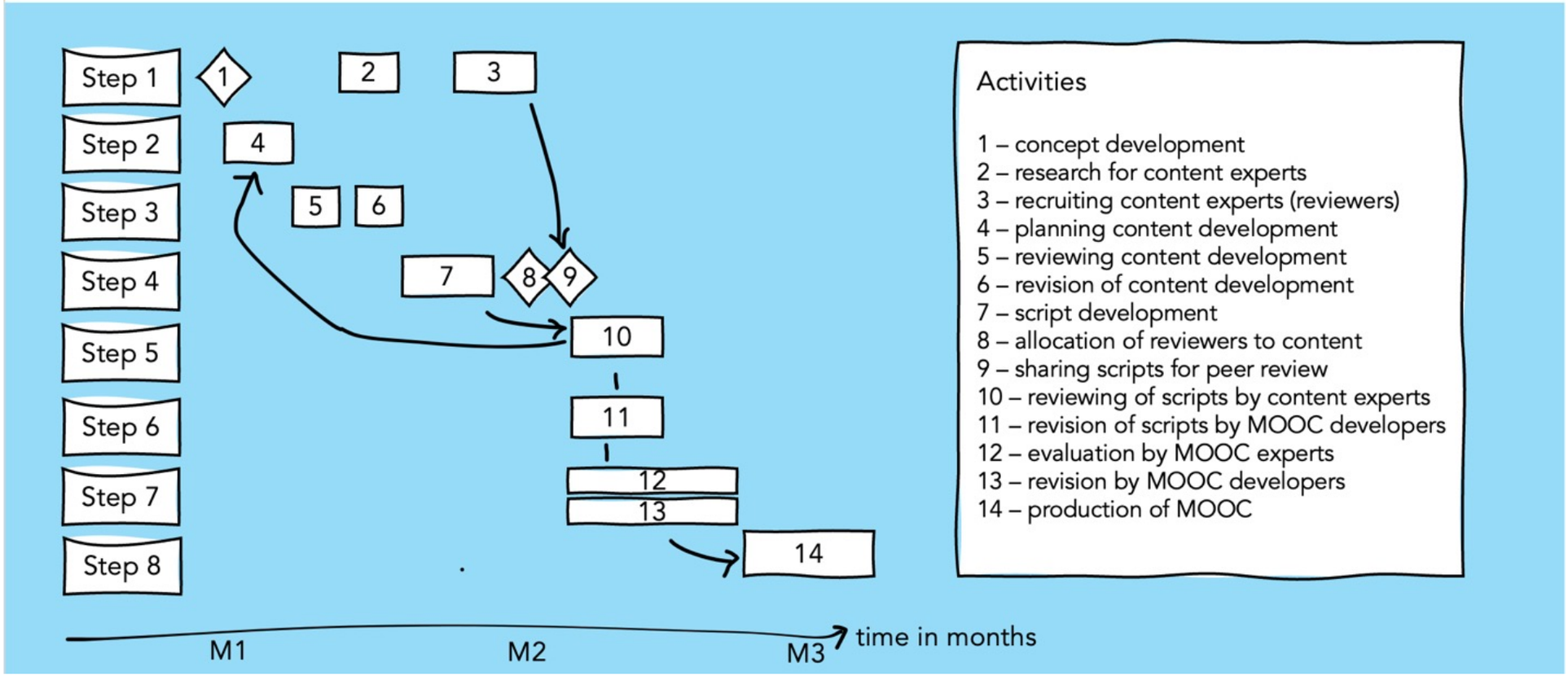
Designed to keep it short, but valid

Result – 8 Step Peer Review Process: Components



Non-chronological visualization of process components and stakeholders

Result – 8 Step Peer Review Process: Sequencies



Prototypical chronological sequence of the process

Results – Process Complexity and Time Effort

- Timeline: January 4, 2023 (preparation) to October 2, 2023 (launch)
- Eight content experts recruited in nine working days
- Minor delays (e.g., cloud permissions, late responses) but overall on schedule
- No scripts required full revision

Results – Collaboration with Peer Reviewers

- Reviewers contributed beyond assigned tasks:
  - Professional networking and resource sharing
  - Didactic, practical, and legal/ethical feedback
  - Voluntary review of additional modules
- Unexpected synergies: early feedback, invitations to professional networks

Results – Learers‘ Perception of Content Quality

- **812 responses from 100 participants** (out of 156 enrolled)
- **92.7% positive ratings** ("rather true" or "completely true")

Results – Learers‘ Perception of Content Quality

(Abbreviated) Statement	Fre-quency	Re-sponses	Not at all true	Rather not true	Neu-tral	Rather true	Com-pletely true	Un-ans-wered	Mean Score
Content is structured	3	77	0.0%	0.0%	0.0%	19.5%	80.5%	0	4.805
Content is coherent	3	94	0.0%	0.0%	1.1%	19.1%	79.8%	0	4.787
Consistency is maintained	1	30	0.0%	0.0%	0.0%	23.3%	76.7%	0	4.767
Content is presented clearly	3	68	0.0%	0.0%	1.5%	23.5%	75.0%	0	4.735
Confidence in accuracy	3	81	0.0%	0.0%	3.7%	28.4%	67.9%	0	4.642
Graphics and text are easy to read	1	36	0.0%	2.8%	0.0%	27.8%	69.4%	0	4.639
Appropriate for the target group	1	32	0.0%	6.3%	0.0%	28.1%	65.6%	0	4.531
Appropriate video length	1	23	0.0%	4.3%	0.0%	39.1%	56.5%	0	4.478
Content is relevant	3	100	2.0%	4.0%	5.0%	27.0%	62.0%	0	4.430
Confidence in completeness	3	93	1.1%	1.1%	14.0%	35.5%	48.4%	0	4.290
Confidence in currency of content	3	93	1.1%	2.2%	7.7%	36.3%	52.7%	2	4.280
Video is visually appealing	1	36	0.0%	5.6%	11.1%	38.9%	44.4%	0	4.222
Use of supportive linguistic elements	1	51	2.0%	3.9%	9.8%	41.2%	43.1%	0	4.196

Consolidated responses per statement (sorted by mean score, relative values). n=812 answers.

Discussion and Conclusions

- Peer review is a **feasible and effective** quality assurance method for MOOCs
- Benefits:
  - Early identification of content weaknesses
  - Enhanced alignment with instructional design principles
  - Facilitation of collaboration and long-term partnerships
- Challenges:
  - Clear guidelines and reviewer training required
  - Seamless integration into MOOC development workflows

Limitations and Future Work

- No comparison group to assess relative effectiveness
- Course completion rate: **12.18%** (typical for MOOCs)
- Future research:
  - Comparative studies of multiple MOOCs under similar conditions
  - Documentation of time-related disruptions to improve scalability

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Thanks!

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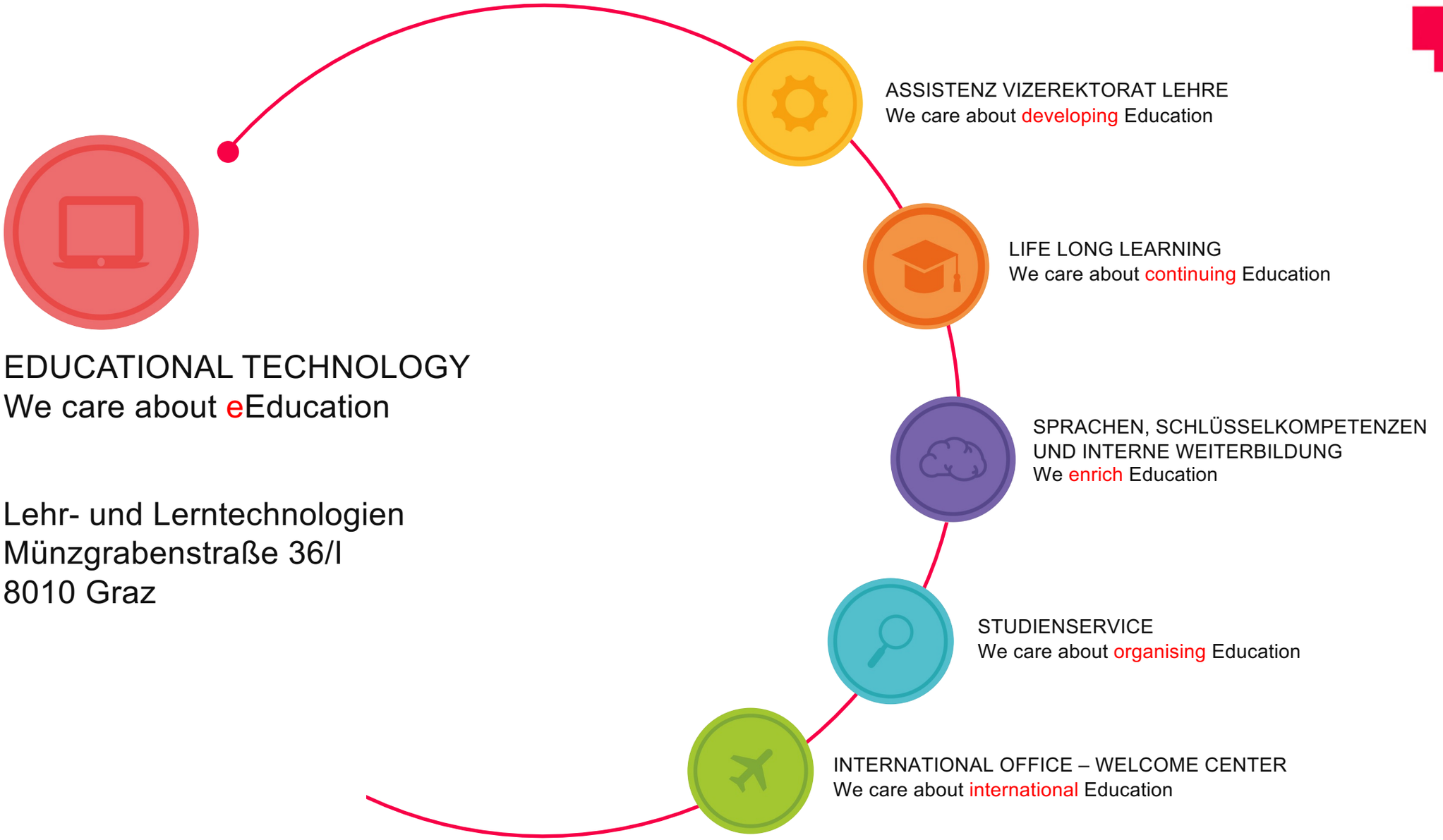

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