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# Eckpunkte einer postdigitalen und partizipativen Lernkultur in Lehramtsbildung und Unterricht

Berufungsvortrag W3 Professur Educational  
Design und digitale Lernkultur, 10.10.2022

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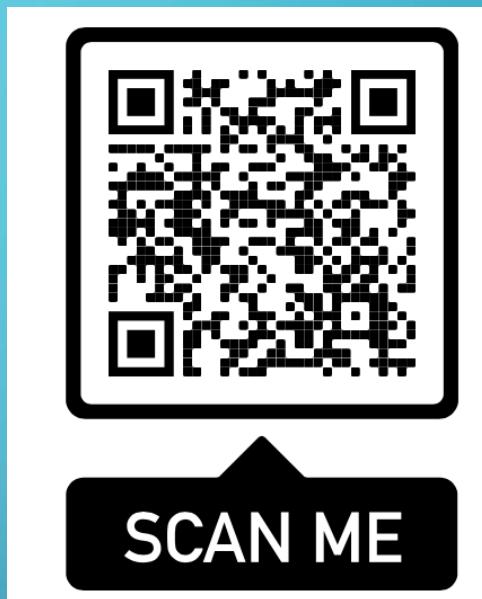


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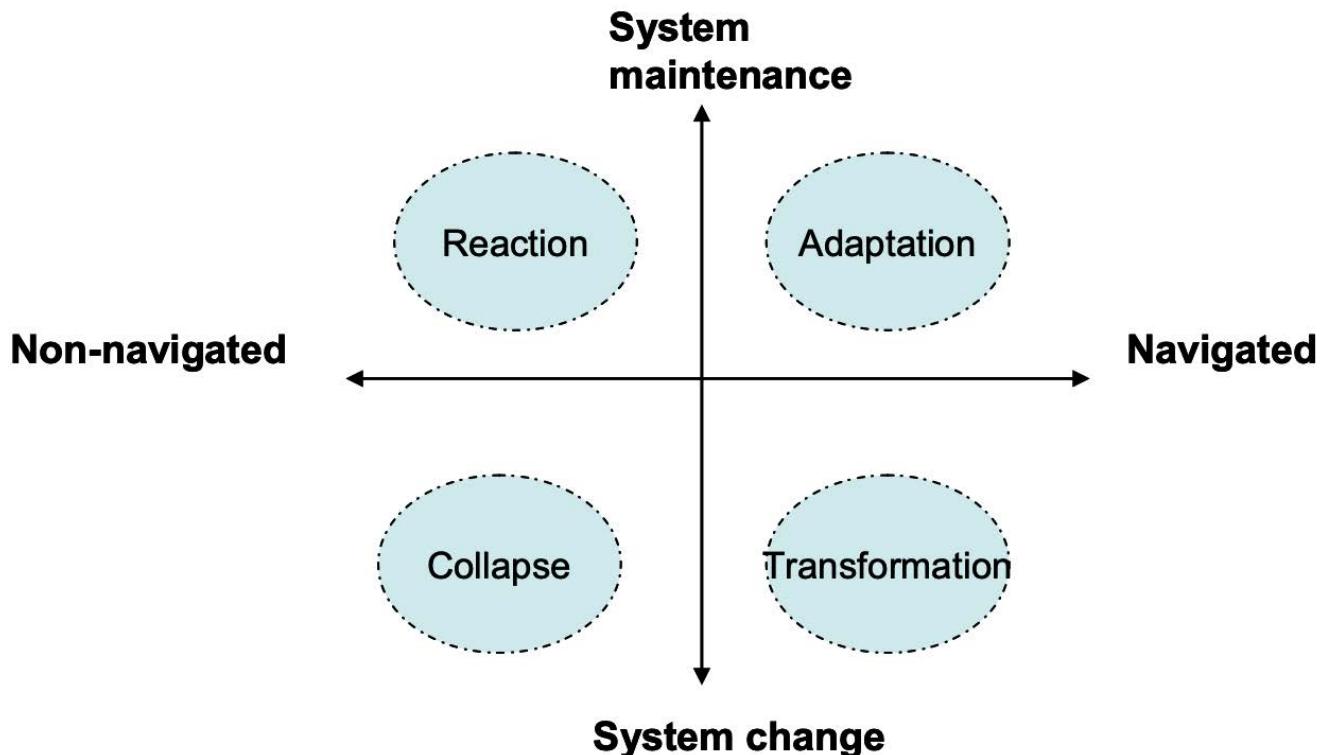
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# ELEPHANT IN THE ROOM

Photo by [James Hammond](#) on [Unsplash](#)

# PERTURBATION



Löf, 2017

# NOTFALLDIGITALUNTERRICHT

## The Difference Between Emergency Remote Teaching and Online Learning

Charles Hodges, Stephanie Moore, Barb Lockee, Torrey Trust and Aaron Bond Friday, March 27, 2020

16 min read

Well-planned online learning experiences are meaningfully different from courses offered online in response to a crisis or disaster. Colleges and universities working to maintain instruction during the COVID-19 pandemic should understand those differences when evaluating this emergency remote teaching.

### SHARE



Anzeige geschlossen



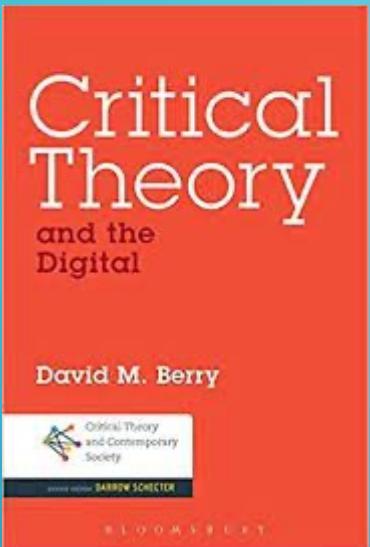
# DICHOTOMIEN



# DICHOTOMIEN



# POSTDIGITALE BILDUNG



Berry (2015) “The digital world is increasingly creating destabilizing amounts of disembedded knowledge, information and processing capabilities that undermine the enlightenment subject

„the digital is not a special or separate domain from embodied, co-present spaces that we inhabit day to day – instead, the two kinds of spaces are inextricably linked with each other“  
(Bayne & Jandric, 2017)

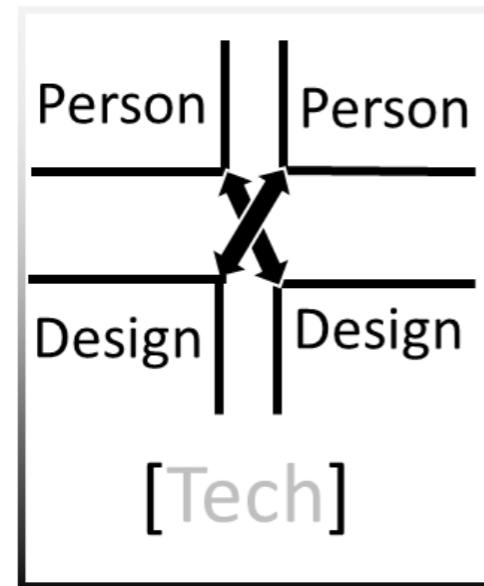
# POSTDIGITALE BILDUNG

Emerging postdigital perspectives reject the notion that education can ever be entirely online or digital; instead, it always involves the combination of digital, biological, material and social.

Fawns, 2018

# POSTDIGITALE BILDUNG

Design Studies



Media Comparison Studies

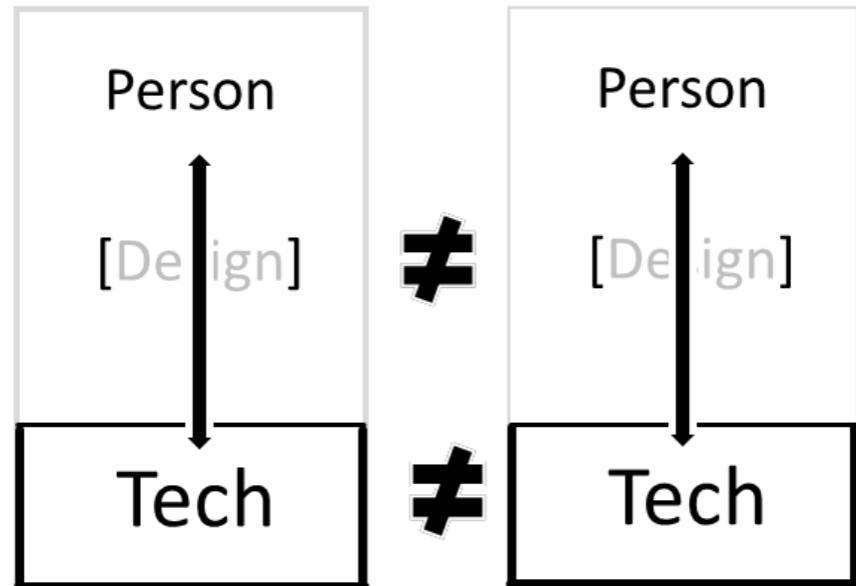
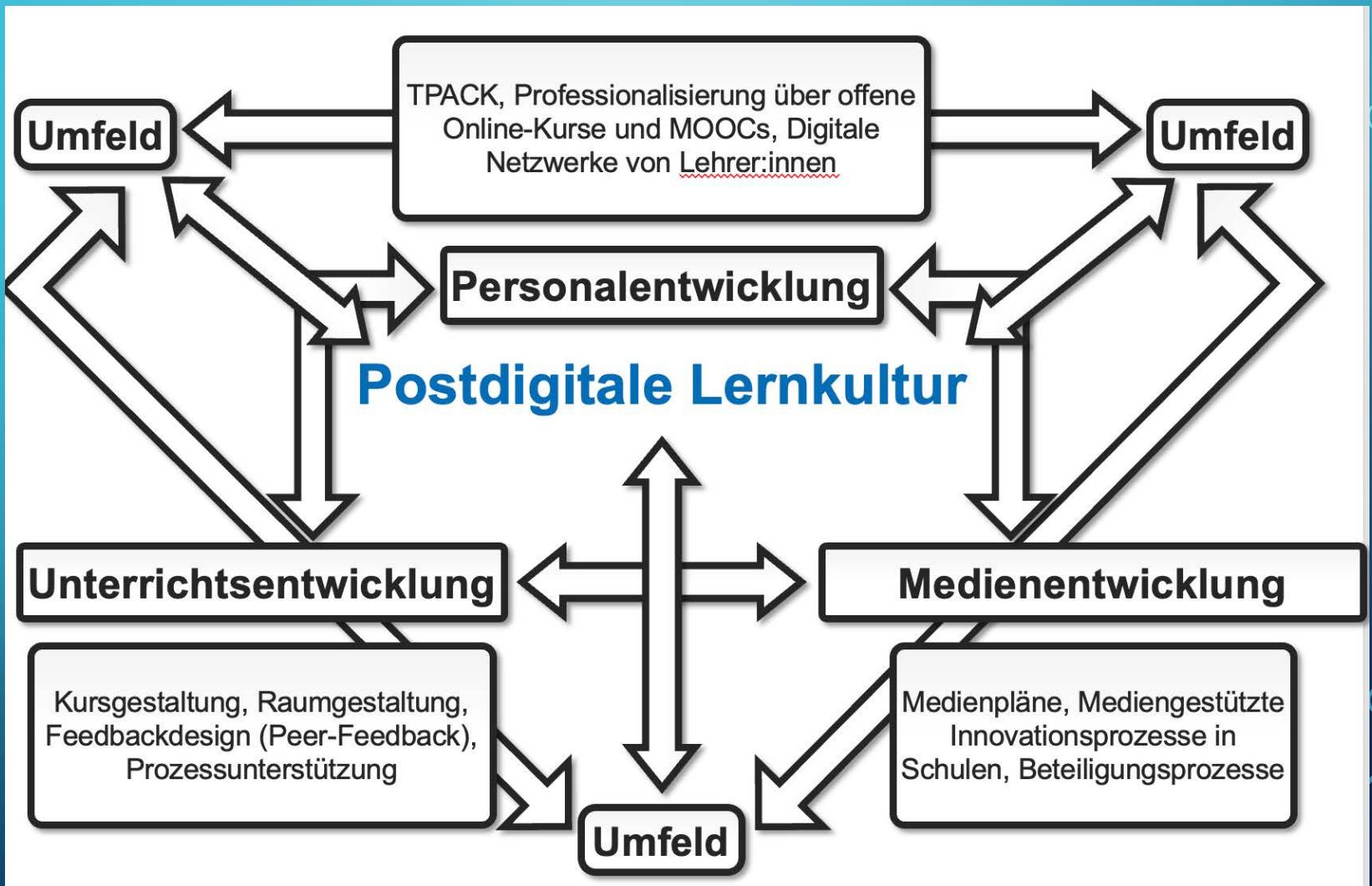


Figure 2. Design studies vs. media comparison studies

Kalz & Kerres (submitted)

# RAHMENMODELL



Adapted model based on Rolff (2013)



# FROM TEACHERS TO LEARNING DESIGNER AND CO- DESIGNER OF TECHNOLOGY- ENHANCED INNOVATIONS



Photo by [NeONBRAND](#) on [Unsplash](#)

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## Wie gut bereitet ein Lehramtsstudium auf das Unterrichten mit digitalen Medien vor? Eine TPACK-basierte Untersuchung

Weidlich & Kalz, in review

FF1. Wie ist der Zusammenhang zwischen TPACK-Einschätzungen und Studienfortschritt?

FF3. Wie ist der Zusammenhang zwischen curricularen Eckpfeilern des Lehramtsstudiums und selbst eingeschätzten TPACK-Dimensionen?

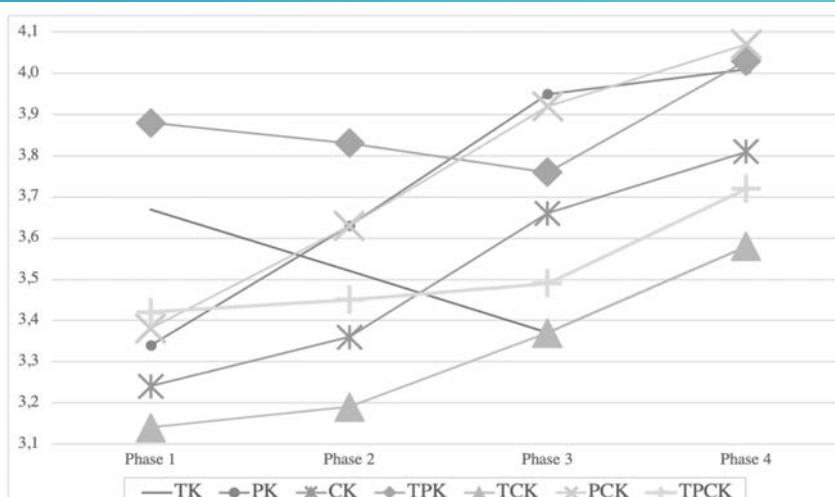


Abb. 2 TPACK-Einschätzungen über Studienphasen

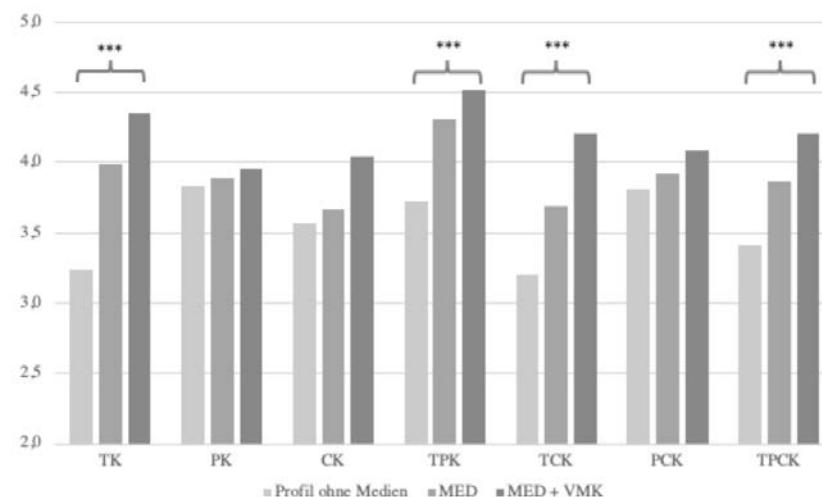


Abb. 7 TPACK-Einschätzungen im Zusammenhang mit Profilwahl, \*\*\*p<.001

# PROFESSIONSENTWICKLUNG VON LUL



Routledge  
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## Technology, Pedagogy and Education

ISSN: 1475-939X (Print) 1747-5139 (Online) Journal homepage: <https://www.tandfonline.com/loi/rtpe20>

### Who is taking MOOCs for teachers' professional development on the use of ICT? A cross-sectional study from Spain

Jonatan Castaño-Muñoz, Marco Kalz, Karel Kreijns & Yves Punie

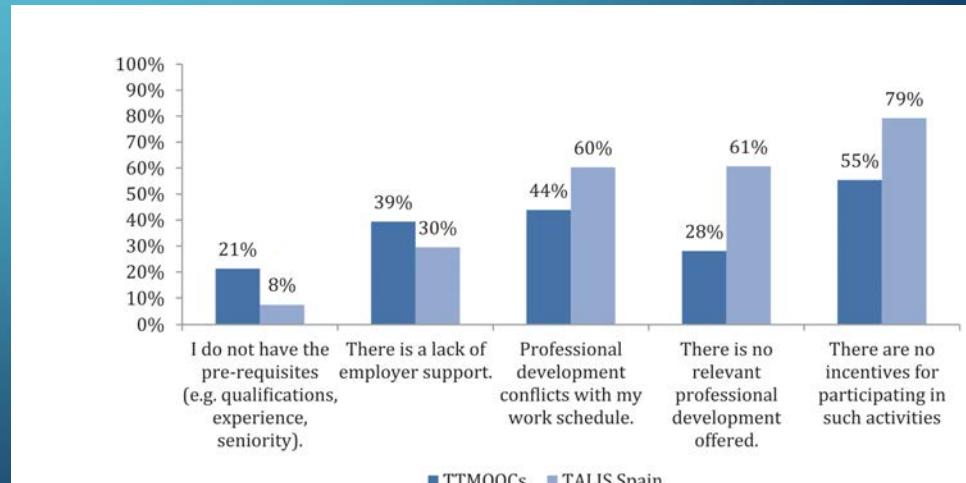
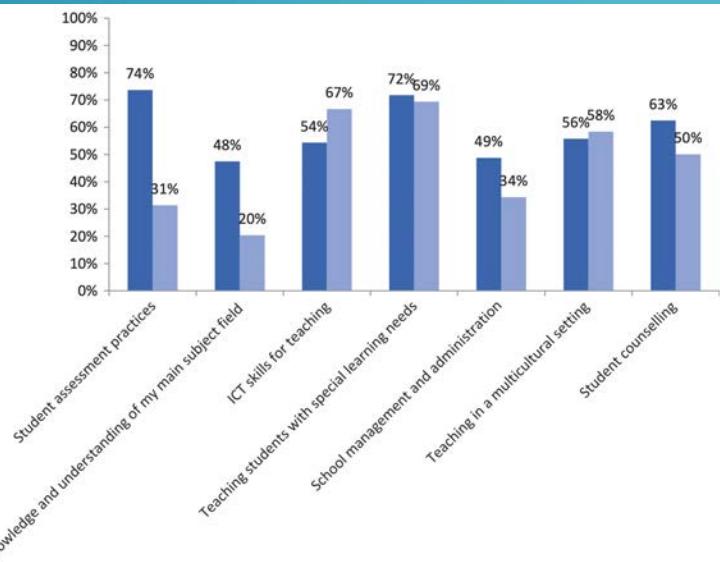


Figure 7. Barriers to TPD (excluding tertiary education).\*

\*Information available for only three TTMOOCs: Cooperative Learning, Open E-twinning (3rd edition) and Gamification.

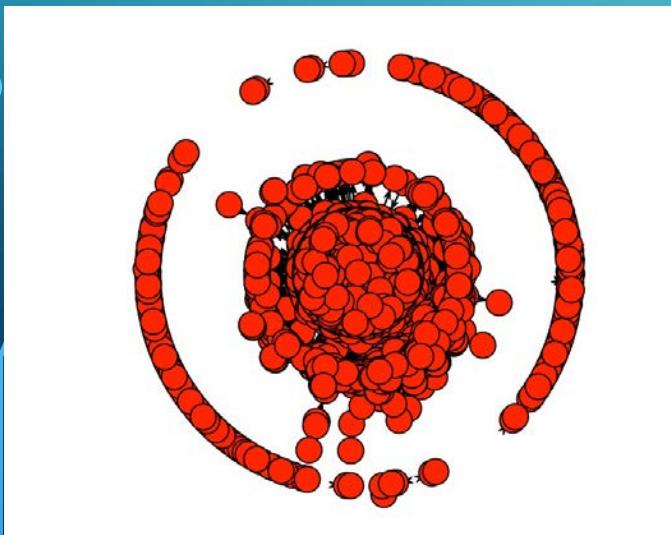
# PROFESSIONSENTWICKLUNG VON LUL

#twitterlehrerzimmer: Transformation of a teachers' professional development network in light of the Covid19 pandemic

NETWORKS  
2021

Marco Kalz, Joshua Weidlich & Martin Rehm

	Dec19	Jan 20	Feb 20	Mar20	Apr 20	May20
Size	2718	3276	3099	8702	6988	6616
Path length	1,05	1,13	1,03	1,02	1,13	1,14
Degree centrality	0,47402	0,48150	0,47593	0,48643	0,48088	0,47905
Betweenness centrality	0,00001	0,00001	0,00000	0,00000	0,00000	0,00000
Edge density	0,00039	0,00033	0,00034	0,00012	0,00015	0,00016
Reciprocity	0,00144	0,00118	0,00125	0,00067	0,00165	0,00349



Topic modeling with LDA:

Topical shift from microdidactical level (diverse mix of sharing instructional practices and tools) towards a focus on meso-didactical issues (delivery questions, readymade instructional materials and platforms).

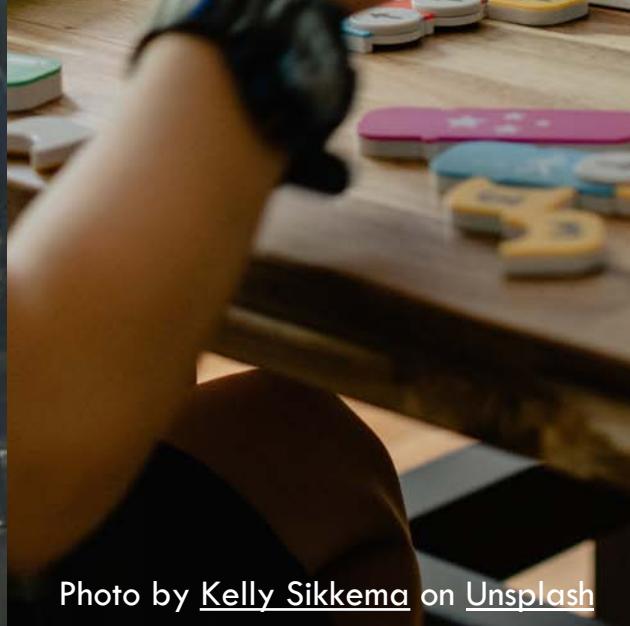
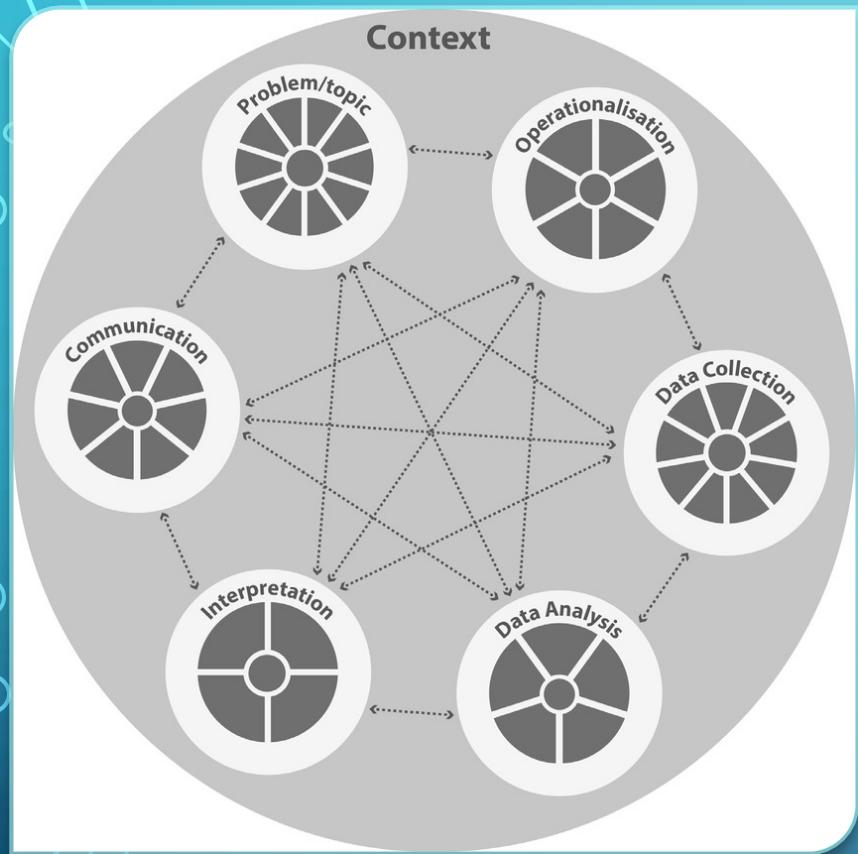


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# TEACHING INNOVATION



Group	N	prior knowledge (17-items school test) <i>M (SD)</i>	5-items knowledge test prior to the experiment <i>M (SD)</i>	5-items knowledge test after the experiment <i>M (SD)</i>
M	43	9.40 (3.00)	3.44 (1.1)	3.62(1.19)
V	32	8,84(2,57)	3.08(.98)**	3.58(.90)**
$M < 9^1$	26	5.96 (1.61)***	2.80 (.98)***	3.60 (.1.19)***
$9 < M < 11$	30	10.00 (.75)	3.5 (1.13)	3.41(1.04)
$M > 11^1$	22	12.63 (0.89)	3.4 (.92)	3.8 (.98)
Total	75	9.2 (2.8)	2.349 (1.04)*	3.618 (1.08)*
	72		3,2	

\*  $t(75) = 7.70, p = .00, r = .66$

\*\*  $t(29) = 2.644, p = .013, r = .44$

\*\*\*  $z = - 2,484, p=.003, r = -.58$

# TEACHING INNOVATION

IEEE TRANSACTIONS ON LEARNING TECHNOLOGIES

## Effects of an Ambient Learning Display on Noise Levels and Perceived Learning in a Secondary School

Bernardo Tabuenca , Senior Member, IEEE, Dirk Börner, and Marco Kalz 

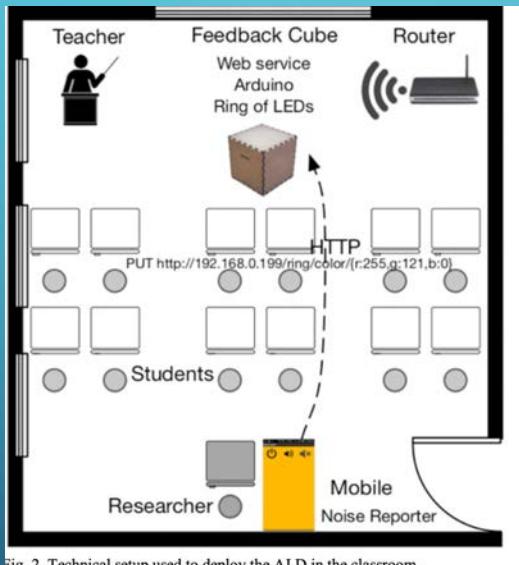
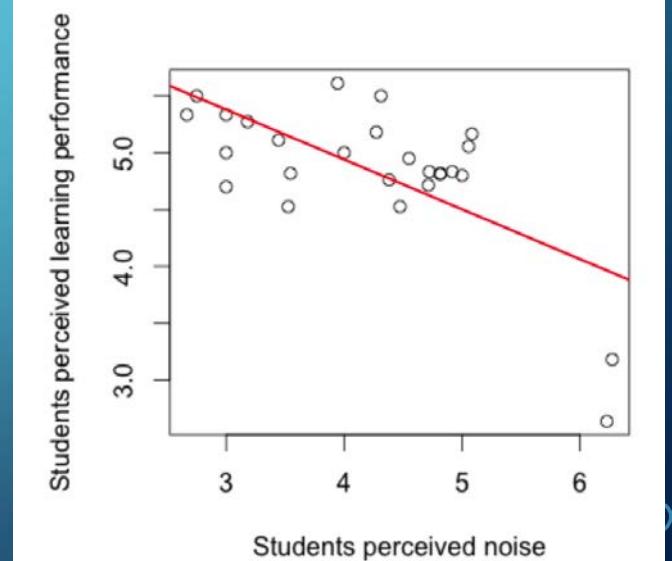


Fig. 2. Technical setup used to deploy the ALD in the classroom.



Tabuenca, Börner & Kalz, 2021

# TEACHING INNOVATION: PEER FEEDBACK

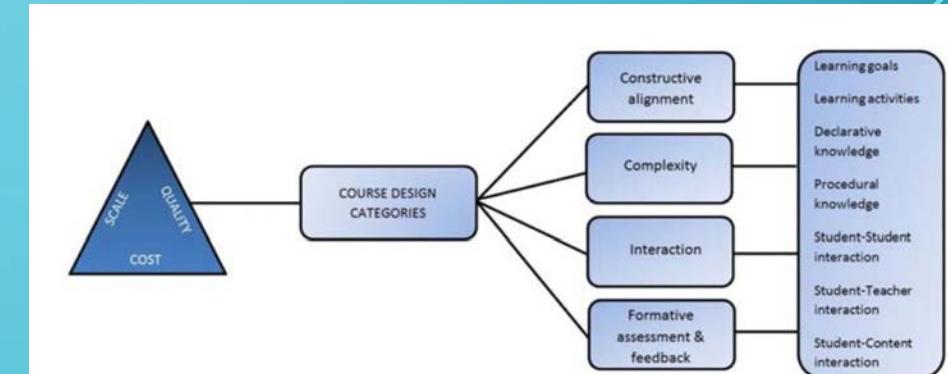
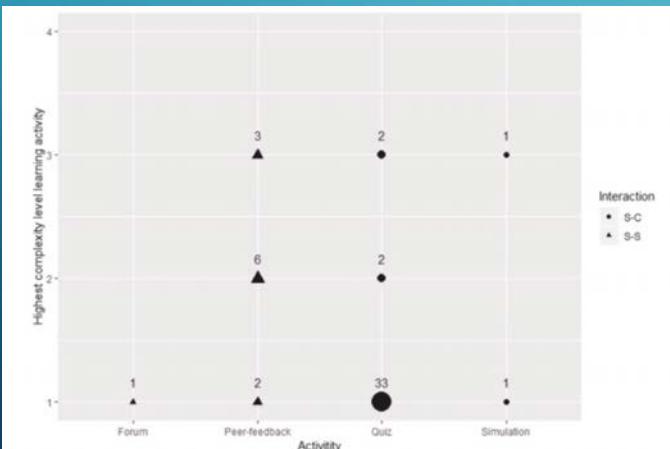


Figure 2: Heuristic framework to analyse educational scalability.

Kasch, van Rosmalen & Kalz, 2017



Kasch, van Rosmalen & Kalz, 2020

	# items	label	$\alpha$
Factor 1	5	Accountability	.80
Factor 2	5	Communicativeness	.70
Factor 3	3	Utility	.70
Factor 4	4	Self-Efficacy	.72
Factor 5	5	Receptivity	.64

Kasch, Van Rosmalen, Henderikx, & Kalz (2022)



# FROM TOP-DOWN INNOVATION TO INNOVATION PARTNERSHIPS

Photo by [Robert Bye](#) on [Unsplash](#)



Photo by [Toby Tash](#) on [Unsplash](#)

# EPISTEMOLOGISCHE DIMENSION

From such a position, the enactment of digital technologies in education has **ontological and epistemological implications** for the educational system that schools, teachers and pupils need to relate to.

# GOVERNANCE DER DIGITALISIERUNG

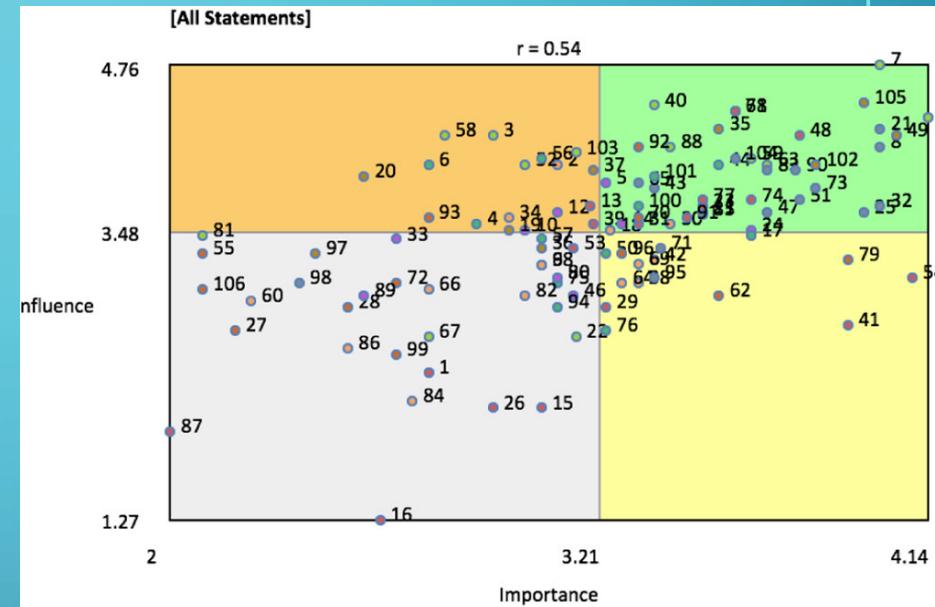
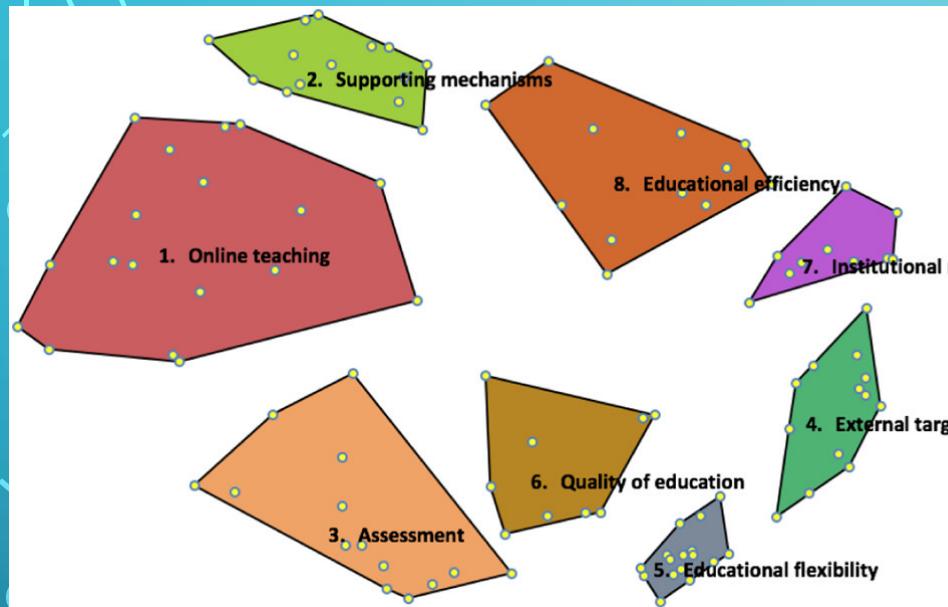
Ebenso deutlich geworden ist, dass diese Agenda nicht aus einer breiten demokratischen Debatte über Möglichkeiten, Grenzen und Risiken einer forcierten Digitalisierung der Schule erwuchs, sondern aus Empfehlungen von pädagogisch nicht ausgewiesenen Expertenstäben, die andere als pädagogische Interessen verfolgen.

## UNINTENDIERTE EFFEKTE

Qualitative Studie von Homberg, Fransson & Fors(2018) zeigt gut die Dilemmata, in denen sich verschieden Typen von Lehrpersonen beim Thema der Digitalisierung befinden

- Vorteilhafter Einsatz von digitalen Medien hängt ab von der Persönlichkeit und Kompetenzen der Lehrperson
- Digitalisierungsdebatte kann das Selbstbild von Lehrern negativ beeinflussen

# DIGITAL MEDIEN UND ORGNISATIONSENTENTWICKLUNG

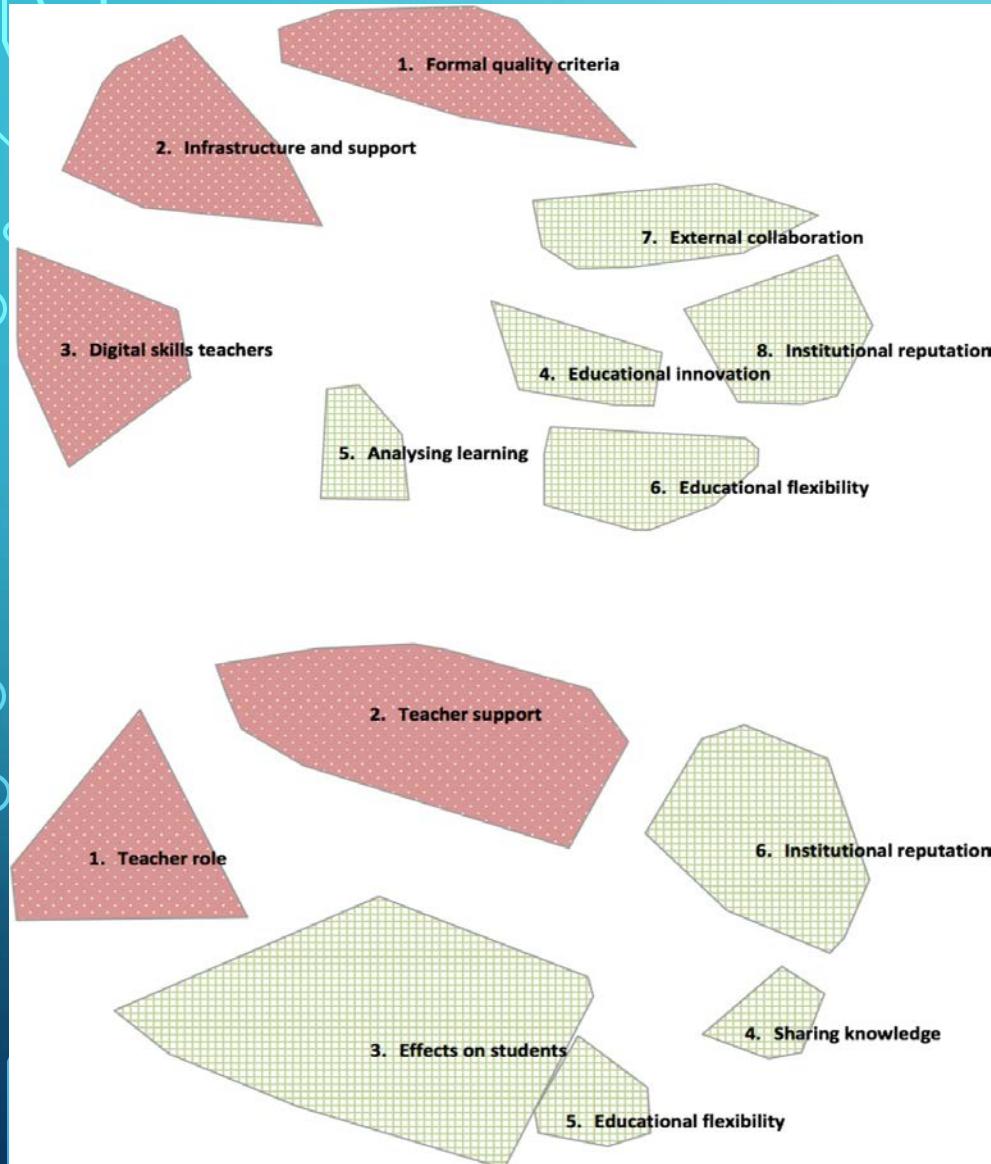


# ORGANIZATIONAL DEVELOPMENT

	Coping codes		
	C10 Primary appraisal	C11 Secondary appraisal	C12 Coping efforts
<b>Thematic Codes (online teaching)</b>			
C1 Skills gap for developing OOE	<p><b>Form and status of materials regarded differently:</b></p> <ul style="list-style-type: none"> <li>- Knowledge about possibilities and appropriate forms missing</li> <li>- Development of materials seems more definitive and less easy to adjust</li> <li>- Use and reuse of materials ambiguous and complex</li> </ul> <p><b>Teacher practices more distributed:</b></p> <ul style="list-style-type: none"> <li>- Involvement of external and multiple stakeholders</li> <li>- Communication with all stakeholders</li> </ul>	<p><b>Consideration of form, media and learning objectives</b></p> <ul style="list-style-type: none"> <li>- Consider use and reuse possibilities</li> <li>- Adjust the form of the materials specifically to learning objectives and requirements</li> </ul> <p><b>Involvement of more stakeholders in the development process:</b></p> <ul style="list-style-type: none"> <li>- Incorporate teachers and their preferences</li> <li>- Make use of expertise of external bureaus and media parties</li> <li>- Involvement of library in data management</li> </ul> <p><b>Sharing of knowledge:</b></p> <ul style="list-style-type: none"> <li>- Platform/central portal or meeting opportunities to gain ideas and knowledge</li> </ul>	<p><b>Planning</b></p> <ul style="list-style-type: none"> <li>- Consider major time investment beforehand</li> <li>- Consider multiple stakeholders</li> <li>- Don't underestimate coordination of tasks and responsibilities</li> </ul> <p><b>Seeking support:</b></p> <ul style="list-style-type: none"> <li>- Coaching by external expertise</li> <li>- Supporting tools (e.g. autocue)</li> <li>- Make use of informal networks to find expertise</li> </ul> <p><b>Create possibilities to experiment:</b></p> <ul style="list-style-type: none"> <li>- Make use of local/bottom up resources (e.g. budget from local bodies for example equipment)</li> <li>- Set up local workshops</li> </ul>
C2 Skills gap for teaching in OOE	n/a	n/a	n/a
C3 Lack of awareness of goal and merits of OOE	<p><b>The commons idea behind OOE is missing:</b></p> <ul style="list-style-type: none"> <li>- Individualistic attitude</li> <li>- Forced extrinsic motivation → no intrinsic value creation → ambiguous knowledge of OOE</li> </ul> <p><b>Not being able to see multiple applications of OOE materials</b></p> <p><b>Management does not pick up on bottom up initiatives</b></p>	<p><b>Sharing of knowledge:</b></p> <ul style="list-style-type: none"> <li>- Platform/central portal with a collection of ideas and good practices to get inspired</li> </ul> <p><b>Incentivise OOE development and teaching innovations</b></p> <p><b>Adapted and personalised training possibilities</b></p>	<p><b>Sharing knowledge:</b></p> <ul style="list-style-type: none"> <li>- Share examples with direct colleagues</li> <li>- Emphasize the gains for others in their contexts</li> <li>- Project as organizational signal</li> </ul>

Schophuizen, M., & Kalz, M. (2020). Educational innovation projects in Dutch higher education: bottom-up contextual coping to deal with organizational challenges. *International Journal of Educational Technology in Higher Education*, 17(1), 1-17.

# UNTERSCHIEDE IM INNOVATIONSPROZESS



Schophuizen, M., Kreijns, K., Stoyanov, S., Rosas, S., & Kalz, M. (2020). Does project focus influence challenges and opportunities of open online education? A sub-group analysis of group-concept mapping data. *Journal of Computing in Higher Education*, 1-26.

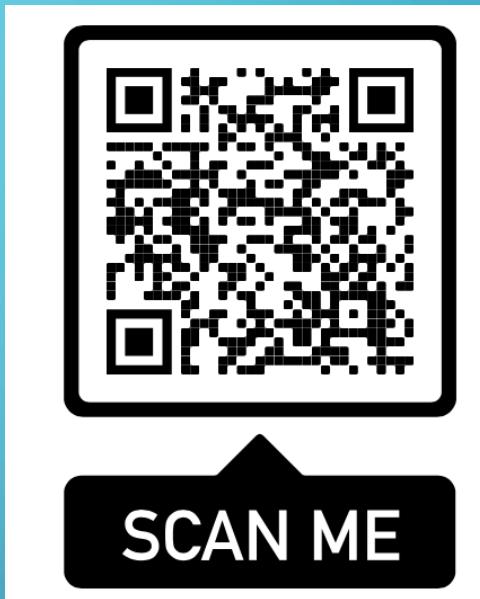
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- Tabuenca, B., Kalz, M., & Börner, D. (2021). Effects of an ambient learning display on noise levels and perceived learning performance in a secondary school. *IEEE Transactions on Learning Technologies*.

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# Vielen Dank!



Our heads are round so our thoughts can change direction.

- Francis Picabia



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