



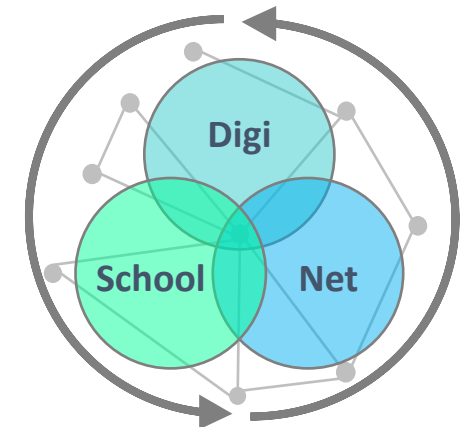
Sustainable school development in a digitalized world

Results from interviews in schools addressing their needs in the process of digitalization and their benefits from networks

Anna Heinemann¹, Marco Hasselkuß² & Manuela Endberg²

¹Learning Lab | ²Working Group on Educational Research | University of Duisburg-Essen

23 August 2021



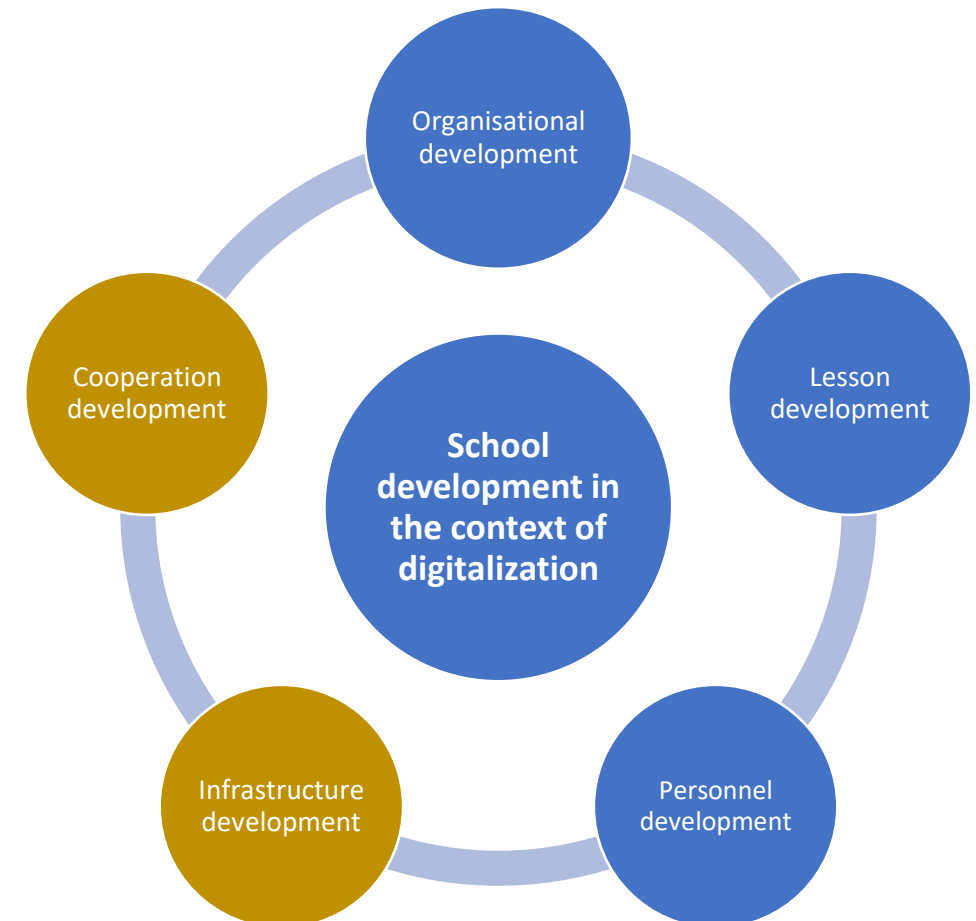
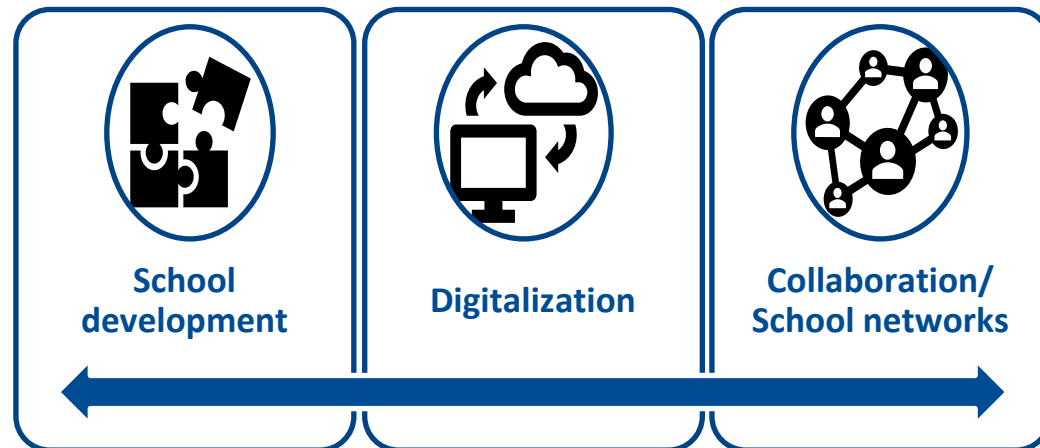
UNIVERSITÄT
DUISBURG
ESSEN

Open-Minded


Background

The process of digitalization in schools

- can best be tackled when working collaboratively (Hobbs & Coiro, 2016; Cress, Moskaliuk & Jeong, 2016)
- Process affects every dimension of school development processes



Sustainable measurements / innovations at schools

- Structural environment / school management essential for teacher collaboration (Schuster et al., 2021; Vangrieken et al., 2015)  time slots planned for cooperation; open classrooms, etc.
- School management can positively influence the willingness of teachers to engage in collaborative activities (Drossel et al., 2019)
- Innovations cannot succeed without the active cooperation of the teaching staff (Holtappels, 2013)
- School management needs to strategically implement the goal and reflect upon the given hindering / supportive factors for achieving this goal (Eickelmann, 2011)
- Central persons for ICT innovations: ICT coordinators or particularly committed teachers (process promoters) (Hunneshagen, 2005)

School networks & Digitalization

School networks:

permanent cooperation between schools and other actors in education administration and further education, moderated by an external authority (cf. Eickelmann & Gerick, 2017; Fullan, 2013; KMK, 2016).

- Digitalization offers new ways of learning / learning culture
 - Changing learning culture = essential process effecting many schools / stakeholders (Heinen, Kerres 2017)
 - Networks support common reflection on the process / transformation
 - Networks support the process in the individual school (Berkemeyer, 2010)

Opportunities & challenges in school networks

Opportunities:

- Exchange, adaptation and transfer of ideas and solution options, mutual learning processes.
- Increased efficiency and motivation: e.g. adaptation of good practice examples for school development in the digitalized world.
- Bundling of competences: e.g. cooperation of actors who do not or not often come together in everyday school life.
- Organizational learning processes: e.g. creation of an ICT school strategy.

Challenges:

- Initially more time is needed, later work is made easier.
- Complexity, especially with heterogeneous groups.
- Composition of participants: possibly only teachers who are already convinced or "instructed" cooperation/ fluctuations in participants.
- Transfer problem: Ensure transfer within the school network and into the individual school: Risk that knowledge/innovation remain limited to the group of network participants.

(cf. Koltermann, 2013; Jungermann, Pfänder & Berkemeyer, 2018)

Research questions

1. What are supportive & hindering factors for the process of digitalization in school development?
2. How do schools benefit from participating in networks with a digitalization focus?

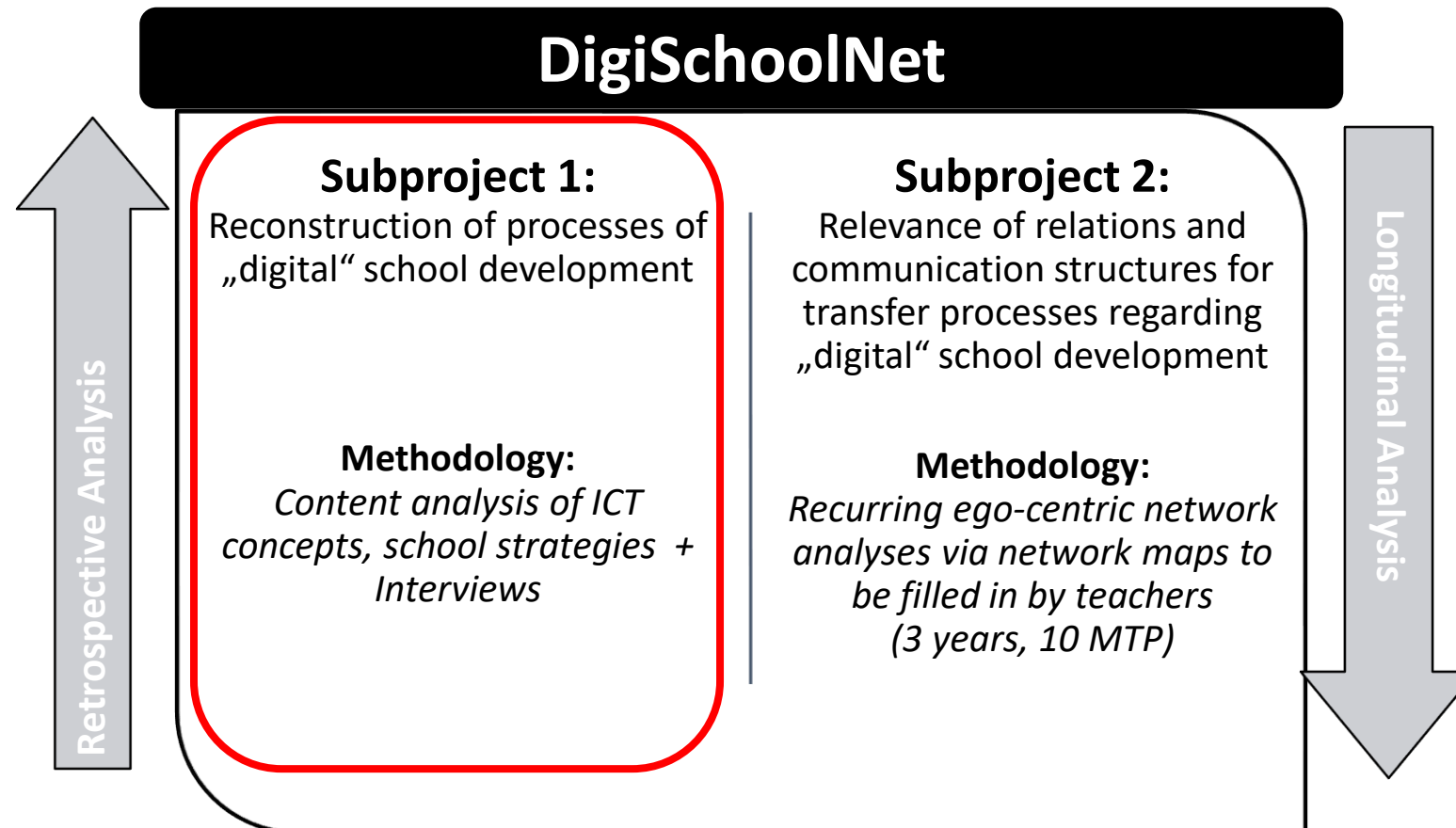
The project “DigiSchoolNet”

SPONSORED BY THE

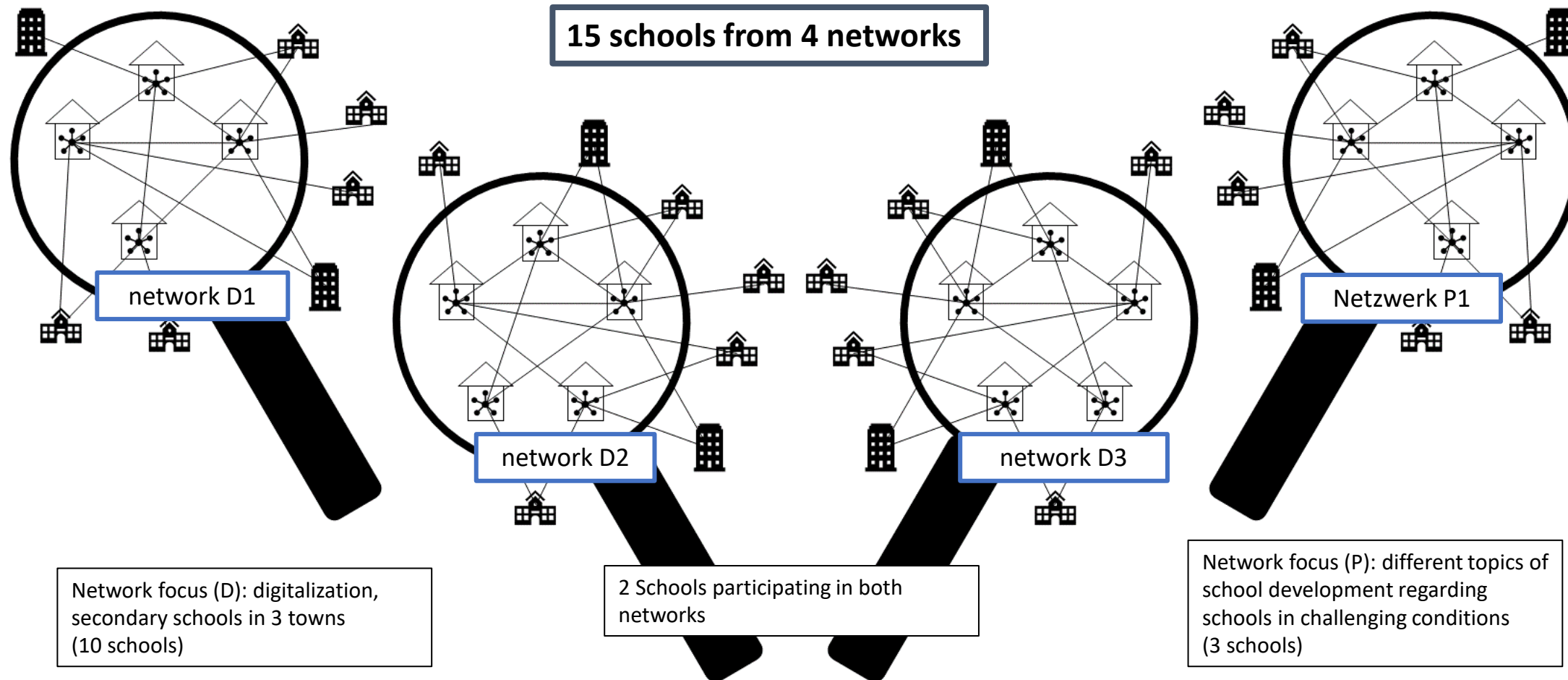


Federal Ministry
of Education
and Research

The “DigiSchoolNet” study (2018-2021)



Interview sample



23 August 2021



What are supportive & hindering factors for the process of digitalization in school development?

SPONSORED BY THE



Federal Ministry
of Education
and Research

Results from interviews

Identified supportive conditions for sustainable implementation in the school



Organisational development	School management is part of the team; School Management as driving force of the school development project. First standards, then autonomy; clear distribution of tasks / transparency in the steering groups, development of a digitalization strategy, concept development based on division of labour
Personnel development	Team structures institutionalized with teaching staff, regular further training offerings
Lesson development	Trust building measurements for teaching staff, Structures for professional exchange; instructional focus on school development projects
Infrastructure development	Quality & quantity infrastructure, close cooperation with school authorities

Results from interviews

Identified hindering conditions for sustainable implementation in the school



Organisational development	Lack of human, time and financial resources; lack of transparency for the teaching staff, too few structures created in school
Personnel development	Lack of team spirit, excessive demands on teachers
Lesson development	Other topics are prioritized in subject councils: lack of material, assessment criteria and competences of the teachers and students.
Infrastructure development	Lack of funding for technology and support (e.g. working hours of ICT coordinator)



How do schools benefit from participating in networks with a digitalization focus?

SPONSORED BY THE



Federal Ministry
of Education
and Research

Results from interviews

What school staff rated positive about the networks in the research project

- Regularity of meetings
- Reassurance and reflection of own professional activities
- boost for individual school on different levels / dimensions
- protected space for sharing experience and knowledge without being judged
- Creating liabilities



Benefits for schools from participating in networks in the context of digitalization

Cooperation as work content	Network cooperation as a driving force in the individual school; cooperation as a form of work; creating structures for cooperation (best practice examples)
Administration	Digitization of school administration, initiation of new regulations
Define goals	Comparison with other schools: Differentiation or alignment; same goal in the network creates a connection
training for teachers	Self-reflection, broadening of horizons, acquisition of expertise, change of perspective
Lesson development	Peer-to-peer input with technical reference (transfer possibility), best practice examples
Infrastructure	Best and worst practice examples from the other schools; closer networking with school authorities; financing of equipment

Intermediate Conclusions

SPONSORED BY THE



Federal Ministry
of Education
and Research

Intermediate Conclusions

Finding ways to make digital school development sustainable

- Roles / Processes / structures for the sustainable implementation of ICT can be applied to the organisational, instructional, personnel and technological aspects of the school (Heinen & Kerres, 2015; Fullan, 2013c)
- Structural environment / school management essential for teacher collaboration (Schuster et al., 2021; Vangrieken et al., 2015)
- Strategies, goals and standards should be defined and pursued (in working groups)
 - Hindering and supportive factors need to be detected in the school (Eickelmann, 2011)
- School management influences the attitude of teachers towards collaboration (Drossel et al., 2019)

Intermediate Conclusions

Finding ways to make digital school development sustainable

School management and school authorities in the network:

- need to focus on the network and commit to it in order to benefit
 - They need to work closely together
 - e.g. institutionalizing municipal ICT coordinators as contact person for schools
 - school management needs to engage in the developmental process of digitalization & find sustainable paths for the individual school
 - Eg. motivation / participation of teachers → creating a participating process vs. teacher collaboration (in networks) too time-consuming (cf. Koltermann, 2013; Jungermann, Pfänder & Berkemeyer, 2018)
 - Creating the role of an ICT-coordinator for technological affiliated work contents
 - Constant reflection of professional knowledge / working space for collaboration

Outlook

Avenues for further research:

- to describe the knowledge transfer from networks into the schools and vice versa qualitatively
- to describe the knowledge transfer inside of the school qualitatively
- to define roles and their tasks in the process
- how systematic changes of learning culture can be supported



Contact:

Anna Heinemann: anna.heinemann@uni-due.de

Marco Hasselkuß: marco.hasselkuss@uni-due.de

Manuela Endberg: manuela.endberg@uni-due.de

<https://digi-ebf.de/digischulnet>

UNIVERSITÄT
DUISBURG
ESSEN

Open-Minded

References

- Berkemeyer, N. (2010). Die Steuerung des Schulsystems – Theoretische und praktische Explorationen. Wiesbaden: VS Verlag für Sozialwissenschaften.
- Cress, U., Moskaliuk, J. & Jeong, H. (2016). Mass Collaboration and Education. Zürich: Springer International Publishing.
- Drossel, K., Eickelmann, B., Schaumburg, H., Labusch, A. (2019). Nutzung digitaler Medien und Prädiktoren aus der Perspektive der Lehrerinnen und Lehrer im internationalen Vergleich. In Eickelmann, B. (Ed.); Bos, W. (Ed.); Gerick, J. (Ed.); Goldhammer, F. (Ed.); Schaumburg, H. (Ed.); Schwippert, K. (Ed.); Senkbeil, M. (Ed.); Vahrenhold, J. (Ed.): ICILS 2018 #Deutschland. Computer- und informationsbezogene Kompetenzen von Schülerinnen und Schülern im zweiten internationalen Vergleich und Kompetenzen im Bereich Computational Thinking. Münster ; New York : Waxmann: 205-240.
- Eickelmann, B. (2011). Supportive and hindering factors to a sustainable implementation of ICT in schools. Journal for educational research online (3), 75-103.
- Eickelmann, B. & Gerick, J. (2017). Lehren und Lernen mit digitalen Medien. Schulmanagement Handbuch, 164 (4), 54–81.
- Fullan, M. (2013). Stratosphere: Integrating technology, pedagogy, and change knowledge. Toronto: Pearson.
- Heinen, R., & Kerres, M. (2015). Individuelle Förderung mit digitalen Medien—Handlungsfelder für die systematische, lernförderliche Integration digitaler Medien in Schule und Unterricht. Bertelsmannstiftung, Individuell fördern mit digitalen Medien, 96–156.
- Heinen, R. & Kerres, M. (2017). „Bildung in der digitalen Welt“ als Herausforderung für Schule. DDS - Zeitschrift für Erziehungswissenschaft, Bildungspolitik und pädagogische Praxis, 109(2), 128-145.
- Hobbs, R. & Coiro, J., (2016). Everyone learns from everyone – Collaborative and interdisciplinary professional development in digital literacy. Journal of Adolescent & Adult Literacy 59 (6), 1-7.
- Holtappels, H. G. (2013). Innovation in Schulen. Theorieansätze und Forschungsbefunde zur Schulentwicklung. In Rürup, M. (Ed.); Bormann, I. (Ed.): Innovationen im Bildungswesen. Analytische Zugänge und empirische Befunde. Wiesbaden: Springer VS, 45-69.
- Hunneshagen, H. (2005). Innovationen in Schulen: Identifizierung implementationsfördernder und –hemmender Bedingungen des Einsatzes neuer Medien. Münster: Waxmann.
- Jungermann, A., Pfänder, H. & Berkemeyer, N. (2018). Schulische Vernetzung in der Praxis. Wie Schulen Unterricht gemeinsam entwickeln können. Münster: Waxmann.
- Koltermann, S. (2013): Innovationskompetenz? Eine qualitative Exploration des Handelns von Lehrkräften in Innovationsprozessen – rekonstruiert am Beispiel von schulischen Netzwerken. Dissertation, University of Dortmund.
- KMK – Standing Conference of Educational Ministers (2016). Strategy "Bildung in der digitalen Welt". URL: https://www.kmk.org/fileadmin/Dateien/pdf/PresseUndAktuelles/2016/Bildung_digitale_Welt_Webversion.pdf
- Schuster, J., Hartmann, U. & Kolleck, N. (2021). Teacher collaboration networks as a function of type of collaboration and schools' structural environment. Teaching and Teacher Education (103).
- Vangrieken, K., Dochy, F., Raes, E. & Kyndt, E. (2015). Teacher collaboration: A systematic review. Educational Research Review (15), 17 – 40.