# THESIS SUMMARY

## Nora Fazekas

### Digitalisation and organizational learning in schools

Ph.D. dissertation

**Supervisor:**

**György Drótos, Ph.D.**

**Mentor supervisor:**

**Tibor Baráth**

Budapest, 2024

**Department of Strategic Management**

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# I. Research background and relevance

In my doctoral research, I explore the topic of digitalisation in the school with the perspective and methodological tools of qualitative research from the perspectives of both organization and management theory.

I compiled my doctoral dissertation using three of my papers. Details of the articles are the following:

1. Fazekas, N. (2023). Iskola a digitalizálódó világban. *Educatio,* 32(2), 339-347. https://doi.org/10.1556/2063.32.2023.2.12

2. Fazekas, N. (2024). Digital utopia and dystopia of schools after the COVID-19 pandemic. *Research in Education,* 119(1), 44-64. https://doi.org/10.1177/00345237231219149

3. Fazekas, N. (2024). Understanding crisis perception and organizational learning–A case study of school organizations in the COVID-19 pandemic. *Vezetéstudomány-Budapest Management Review*, *55*(7-8), 45-58. https://doi.org/10.14267/VEZTUD.2024.07-08.05

The first article explores the complex interplay between institutional pressures, organizational learning processes in a digitalising world, and the resulting transformations in educational institutions through an interdisciplinary lens. The second article applied a utopian-dystopian theoretic approach to explore sociotechnical imaginaries of schools. Finally, in the third article, I set out to identify factors influencing the learning paths of schools in a crisis focusing on digital competence building. The first article is a conceptual paper, and the following two empirical papers explore different lines of thoughts originating from the first one, however can be understood as separate investigations as well.

At the time of planning my doctoral research, the building of digital competence in schools was a central development field in public education in Hungary. It has been since before the necessary digital education period caused by the Covid-19 pandemic. Policy institutions in Hungary as well as all over Europe have been setting goals and taking the necessary steps to improve the digital competence of schools, teachers, and students.

Despite the efforts, it seemed to me that digital competence was rather hard to master at the envisioned level in public education institutions. Generally, schools seem to struggle with digital transformation more than organizations in the for-profit sector, even in the face of

pressures caused by the COVID-19 pandemic, as we could see later, that has brought schools a significant leap forward.

My observation was supported, as an almost exponentially growing academic interest in educational digitalisation was clearly visible from 2018 and 2019 in the number of articles written on the topic when I started my doctoral studies. While in this time the focus on digitalisation was rather general effects and phenomena of digitalisation, in later years articles have been mainly investigating the pandemic-related processes and outcomes (e.g., Dhawan, 2020; Williamson et al., 2020), as well as distance/online/remote education and e-learning (e.g., Appolloni et al., 2021; Damșa et al., 2021). Growing but still scarce are publications in the field about recent technologies that are impacting schools such as AI and machine learning, virtual reality, big data, internet of things, blockchain etc. (e.g., Kaufmann, 2021; Qureshi et al., 2021), especially from an organizational viewpoint. However, the very fundamental social aspect of the digital divide and digital inclusion (e.g., Castaño Muñoz et al., 2022; Lythreatis et al., 2022) appears more frequently in the literature.

I regard education as the best means to increase society's capacity for growth, consequently, I believe that schools need to be able to foster digital competence in the information society as well. The Digital Economy and Society Index (DESI) shows that its human capital dimension in Hungary, incorporating Internet User Skills and Advanced Skills and Development, has been stagnating, experiencing only a slight increase since 2015, and in absolute value, Hungary places below the EU average, among the last third. Hungary is ca. 6 years behind the leading economy, Finland, and 1,5 years behind the EU average in the digital evolution (European Commission, n.d.).

In Hungary, although I evaluate current education policy actions on digital transformation as insufficient, there have been significant innovations in the past more than 10 years, that impact schools' context for digital learning.

The present doctoral research primarily wants to contribute to the discourse about the role and future of schools in digital education, in the territory of organization theory, and to the management theory of crisis learning in organizations.

Digitalisation is a complex social process, however, the turbulent changes that impact education systems and schools now, such as the pandemic and the easily available AI solutions disrupt this social process in a crisis-like way, pushing academics and society actors to rethink basic values and purposes of general education. To investigate the institutional dilemmas and

organizational learning dynamics of digitalisation in schools represents an exciting research field, not only because of its complex environment, diversity of stakeholders, relevance, and unprecedented crisis-learning process but also because of the critical need in our local and globalizing society for schools to succeed.

# II. Research gaps and questions

The academic research field of digitalisation in education has been changing immensely since the planning of my doctoral research. While in 2019 digital competence frameworks (DigComp 2012, DigCompOrg 2015, DigCompEdu 2017) and their impact on the sector were still relatively new and just starting to push digital development actions forward, suggesting a very timely and relevant field of research, the COVID-19 pandemic accelerated the academic interest extraordinarily. If we issue a search in Scopus (TITLE-ABS-KEY ("education*" AND "school*" AND "digitali?ation" OR "digital transformation" )), we can see that there were almost 5,5 times more articles published since 2020 than before that altogether, and this growth still continues. Many empirical research papers referenced in this dissertation have been published since the design and the start of the empirical research, in May 2021, turning the purposeful aiming at research gaps into shooting at moving targets.

My approach to addressing research gaps is rooted in cultivating my professional research motivation and joining it with the local and international discourse, emphasising an organizational theoretical viewpoint, trying to uncover school futures, possible scenarios, change dynamics, possible implications, and connected organizational learning. Based on both my academic readings, referenced in the included papers and my research experiences in the field, I believe these pursuits to be most pertinent.

In this section, I will outline the research gaps and the subsequent research questions addressed in each article within the dissertation.

## II.1 The school in a digitalizing world

The transformation of schools as institutions is a subject of enduring scholarly interest, particularly in the context of evolving educational paradigms. However, an extensive academic discourse and theorising of the effect of the integration of digital technologies is still missing.

Such discourse could contribute to equitable access, teacher preparedness, improved student outcomes, consideration of socioeconomic ramifications, and the development of effective policy and regulatory frameworks. This academic dialogue is essential for ensuring that educational institutions are well-equipped to leverage the potential of digitalisation to enhance the quality of education and address the demands of the modern era.

As a consequence, I posed the following questions in my article:

> *Q1: How is digitalisation changing our image of schools?*
>
> *Q2: How do changes in the school as an organization and the school as an institution interact?*

I have chosen two theoretical approaches to frame my theorising of the phenomenon: the neo-institutional approach and the organizational learning theory approach. These frameworks offer distinct lenses through which to examine the changing nature of schools and provide valuable insights into the complex interplay between external forces and internal adaptation within educational institutions.

The neo-institutional approach draws upon sociological and organizational theories to scrutinize how schools, as traditional institutions, respond to external pressures for change and conformity. This framework underscores the role of institutional isomorphism, whereby schools adopt structural and cultural features that mirror prevailing norms and values in the larger educational landscape. It elucidates the ways in which schools are influenced by external stakeholders, such as policymakers, parents, and accrediting bodies, and how these pressures shape institutional responses and innovations.

Conversely, the organizational learning theory approach delves into how schools, as organizations, adapt and evolve internally in response to changing circumstances. This framework emphasizes the significance of knowledge creation, diffusion, and retention within schools as a means to enhance their organizational capacity and effectiveness. It explores how learning processes at various levels within educational institutions, from individual classrooms to administrative offices, contribute to the continuous improvement and adaptation of schools.

Both the neo-institutional approach and the organizational learning theory approach shed light on the dynamic and multifaceted nature of educational institutions. They offer complementary perspectives on the evolving roles of schools in the face of contemporary challenges, including digitalisation, changes in pedagogy, and shifts in educational policy. This article embarks on a journey to explore these theoretical paradigms and their applicability in elucidating the

changing landscape of schools as institutions in the 21$^{st}$ century. Through an interdisciplinary lens, it seeks to unravel the complex interplay between institutional pressures, organizational learning processes, and the resulting transformations in educational institutions, fostering a deeper understanding of the evolving nature of schools in the digital age.

## II.2. Digital Utopia and Dystopia of Schools after the COVID-19 Pandemic

The integration of digital technologies into schools has transformed the way we teach and learn, opening up avenues for innovation and enhanced educational experiences. Digital school futures represent a paradigm shift in education, emphasizing the utilization of technology to expand access, personalize learning, and equip students with the skills needed to thrive in an increasingly digital world. From virtual classrooms to interactive learning platforms and data-driven instruction, the possibilities are endless. However, in our enthusiasm to embrace these transformative changes, we must also recognize that this digital shift brings with it a myriad of complexities and uncertainties.

School leaders and teachers navigate uncharted territory, it becomes evident that expectations about the future vary. Understanding the precise impact of digital technologies on teaching and learning, the effectiveness of different digital tools and platforms, and the implications for educational equity are just a few examples of areas that can be debated.

From the perspective of educational managers and policymakers, comprehending schoolteachers' attitudes and expectations towards digitalisation is of paramount significance for informed decision-making and effective policy implementation. Teachers serve as the frontline implementers of digital initiatives within schools, and their acceptance and enthusiasm are essential for the successful integration of technology in the classroom. By understanding their attitudes, educational managers and policymakers can identify potential obstacles and design targeted interventions to address resistance, ensuring the smooth implementation of digitalisation strategies. Moreover, teachers' expectations inform the allocation of resources and support needed for their professional development, helping to tailor training programs and resource distribution to meet their specific requirements. This understanding also enables educational managers and policymakers to align their policies and strategies with the needs and aspirations of teachers, fostering a collaborative and supportive environment that maximizes the benefits of digitalisation while mitigating potential challenges, ultimately leading to

improved educational outcomes. However, domestic assessment is needed, as all national educational systems have their own characteristics that have to be taken into consideration.

In my second article, I set out to identify these narratives for scholars, policymakers, and educational leaders to better comprehend the complexities of digital imaginaries of the school. This study sets out to answer the research question:

> *Q3: What are the dreams and fears of school leaders and employees regarding digitalisation in schools influencing their attitudes toward increasing involvement of technology?*

The applied utopian-dystopian theoretic approach provides an effective methodology for analysing the impact of digitalisation in education. It allows for a balanced assessment of both the potential benefits and challenges. Utopian scenarios envision an idealized future where technology enhances education, while dystopian perspectives highlight potential drawbacks. As such, the utopian-dystopian dichotomy proves to be a valuable methodology for capturing the complexities of digitalisation in education and guiding well-rounded discussions and decisions in this evolving landscape.

## II.3. Understanding crisis perception and organizational learning: A case study of school organizations in the COVID-19 pandemic

The COVID-19 pandemic has significantly accelerated the urgency of understanding how organizations learn in times of crisis, with a particular focus on digital competence building. As the pandemic forced organizations to rapidly pivot to remote work, online services, and digital operations, the importance of digital competence and adaptability became starkly evident. Organizations needed to learn and adapt to this digital shift swiftly, often under duress. This necessitates an exploration of the dynamics of organizational learning in the context of crisis and its application to building digital competence. While the pandemic presented a unique case study, it also uncovered significant research gaps, particularly in the realm of how organizations effectively build and sustain digital competencies in crisis situations. This article delves into the critical Importance of studying organizational learning during crises, specifically within the context of digital competence building.

I aim to answer the following research question:

***Q4:*** *What factors influence the learning paths of the observed organizations within the crisis, and how?*

Understanding crisis as a natural process in an organization's life and acknowledging that learning occurs within the crisis, particularly shaped by organizational perception, forms the unique perspective of this article. Crisis perception directly influences an organization's ability to learn and adapt effectively, impacting decision-making and resource allocation. This recognition of crisis as an inherent element of organizational life not only enhances our understanding of how organizations navigate challenges but also illuminates the cognitive processes underlying crisis management. By examining the interplay between crisis perception, learning, and the inherent nature of crises, this study offers valuable insights into crisis learning, and organizational adaptability, contributing significantly to the field of management studies.

Figure 1 shows the interrelations of the research questions within the doctoral dissertation.

**Figure 1** Relations between research questions
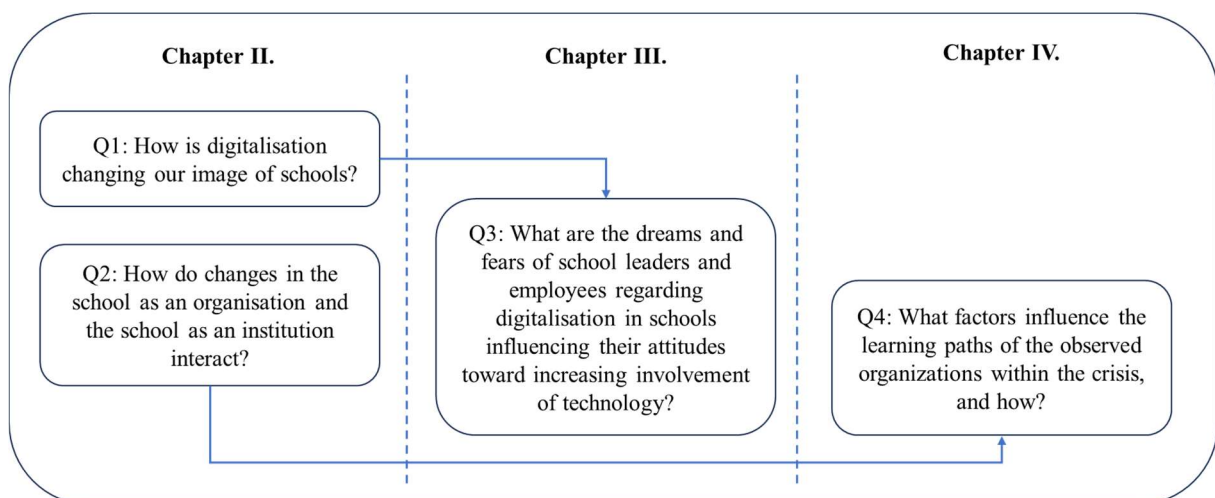


*Source: Own edit*

# III. Methods

In my doctoral research, I investigate schools, with different maintainers (Ministry of Human Capacities, Ministry for Innovation and Technology and church) from ISCED1 to ISCED3 to cover a variety of educational contexts. The research was carried out in collaboration with the Hungarian-Netherlands School of Educational Management (Hungarian abbreviation: KÖVI). KÖVI was operating as an organizational unit of the University of Szeged, and its main goal for more than 20 years was to contribute to the enrichment of school leadership and organizational development in Hungary. Accordingly, the institution offered several courses for aspiring and current school leaders, as well as conducted research on its field of expertise, and carried out organizational development projects.

With my doctoral project, I joined the Learning organization research in the South Great Plain region of Hungary. The research was first carried out in 2015 and was repeated in 2020. In this second data collection period, I involved questions pointing to the digital competence of the school, with the notion of gaining some insights into digital competence and its connection to learning organizational operations. Even though I decided not to include the preliminary results of the quantitative research directly in my doctoral project, they reinforced that the relationship between organizational learning and digital competence is worth investigating further (see Kersánszki et al., 2021).

KÖVI was closed at the end of the academic year in 2021, as a result of a reorganization measure at the university. As the aforementioned research project got cancelled too, I had to redesign the frame of the research methodology, according to now more limited resources.

Below, I aim to introduce the basis of my empirical research.

## III.1.    *Conceptual paper*

Yadav (2010) promotes conceptual papers as a widely acknowledged genre in social sciences and warns about their decreasing numbers despite their essential function in academic progress. In my doctoral dissertation, in Section II., I apply this scientific approach to utilise one of its multifaceted roles that allows the author to foster knowledge development and strategies for theory development (Yadav, 2010).

According to Gilson's and Goldberg's guidelines (2015), *"beyond summarizing recent research, manuscripts should provide an integration of literatures, offer an integrated framework, provide value added, and highlight directions for future inquiry"* (p. 127). A strong conceptual piece should start with a brief overview of the field's current state, including what is known, its historical context, and unexplored areas. The review section should be concise, with the paper quickly transitioning to an in-depth exploration of a specific theoretical aspect.

Papers of this tradition do not aim to provide comprehensive literature reviews or create entirely new theories. Instead, they seek to offer fresh insights into relationships and associations among key concepts, enhancing our understanding of the central constructs. Visual aids, such as figures, are highly recommended, as they help readers grasp typologies and relationships in these papers, bridging theory and review (Gilson & Goldberg, 2015).

Conceptual paper as a methodology has its equivalent tools to empirical research (Jaakkola, 2020). Instead of theoretical framing the theories and concepts used to generate novel insights need to be chosen. The choice of theories and concepts analysed will act as our data. The unit of analysis will be exchanged by the chosen perspective, or the level(s) of analysis or aggregation. Key concepts to be analysed or used to analyse a phenomenon will act as our variables. The way we translate our target phenomenon in conceptual language, and define key concepts is similar to the operationalization of our research, such as using scales and measures. The integration of concepts and argumentative quality of the paper can be compared to the approach of data analysis.

Jaakkola (2020) names four main types of conceptual papers: theory synthesis, theory adaptation, typology, and model. The approach applied in the first article, in Section II., builds mostly on the template of theory adaptation. Typically, this approach seeks to change the scope or perspective of an established theory by enriching it with insights from other theories or perspectives with the goal of 1) revising current understanding, 2) problematising an existing theory or concept and resolving identified dilemmas by introducing a new theoretical lens, 3) expanding the application domain of an existing theory or concept by introducing a new theoretical lens, or 4) identifying new dimensions of an established construct by introducing a new theoretical lens (p. 22). The below article comprises mostly the last two goals, by applying and combining institutional and organizational theories with the perspectives of education and digitalisation.

## III.2. *Qualitative research*

Qualitative research is diverse both in terms of its philosophical background and methodological practices. Accordingly, it has numerous definitions across research traditions. Denzin and Lincoln (Denzin & Lincoln, 2011) describe qualitative research as "a set of interpretive, material practices, that make the world visible", and where "researchers study things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them" (p. 3). I chose this interpretation, as it corresponds with my paradigmatic stance as well as with my research goals.

Premises of interpretive qualitative research do not only impact practices and settings but question the very role of the researcher. They deny the illusion of positivist traditions, that the researcher can be independent of the subject of study. As Holloway and Biley (2011) write, "we are also part of what is being studied. How much we should be part of it is a question both interesting and problematic" (p. 971). In qualitative research, my duty as a researcher is to keep 'empathic neutrality': to avoid obvious, conscious or systematic bias, that can appear during the collection, interpretation, and presentation of data (Ormston et al., 2013), while acknowledging that it is never fully possible. This makes the reflexive practices of the researchers inevitable, which, if carried out consciously and systematically, are the pledge of validity.

As a summary of the above, we can conclude that each qualitative research is as unique as the case or as the researcher himself or herself. As Maxwell (1996) notes, qualitative research is more a "do-it-yourself" than an "off-the-shelf" solution, which requires not only the careful design of the specific elements of the research design but a continuous interaction and adaptation among those elements. Consequently, the research design is an interconnected, flexible systemic structure.

## III.3. *Case study methodology*

To provide a rich description of the researched phenomena I have chosen to apply the case study approach of qualitative inquiry. Based on Stake (1995) we use the framework of case study methodology if we wish to uncover unique attributes of a specific, complex unit or system. It allows one to build a theory or gain a better understanding of the local context (Marshall & Rossman, 1989; Yin, 2009). As Maaløe (Maaløe, 2004) suggests, the case study research method gives the chance to trace links between discrete happenings and to understand how and

why a certain chain of events may be released. Although learnings of one case study are not fit for generalization, the higher the more detailed description of the case's uniqueness is, the more it can add to and be fitted to previous experiences. Thus, generalization happens through emerging new understandings by combining previous personal and vicarious knowledge and new learnings (Stake, 1994).

Stake (1995) differentiates three groups of case studies. (1) Intrinsic case studies focus on deep understanding; this is the sole purpose of the research. The (2) instrumental case studies differ from the previous one in that the aim of gaining understanding is to utilize that knowledge, for instance, to understand a wider problem. The last type is represented by the (3) collective case study, which is in fact instrumental research that has not only one but also several subjects, where the relationship between the knowledge gained from each subject is important.

I have chosen to apply the case study approach as the empirical data collection strategy of my research. The instrumental case study methodology can help me tell a story, and present a rich descriptive report about the development of the organizational phenomenon of organizational learning and digital competence development in the rare event of the COVID-19 pandemic. It offers the frames to dive deep and with the aim of understanding, while at the same time, it allows the formulations of generalized suggestions by noting and acknowledging the uniqueness of the cases.

## III.4. *Overview of the research design*

The schools were selected *intensity-based* with *stratified purposeful* sampling (Huberman & Miles, 1994). The *intensity* criteria demanded schools be able to show some examples of involvement in organizational digitalisation initiatives in the past two years. For the *stratifying* criteria, the varying attribute "school owner" was chosen. As a result, state schools providing general and vocational education, as well as church-owned schools are also part of the sample, as domestic debate suggests that these schools have different opportunities regarding funding and autonomy (Jordán, 2019; Péteri & Szilágyi, 2022). The participation was invitation-based. As the project demanded serious engagement from the schools, the most significant criterion for selection and invitation was their readiness to cooperate in the different stages of the research project. In the first round 5 schools got invited; as all of them agreed to participate, a second round of invitations was not issued. A summary of the main characteristics of the schools can be found in Table 1.

**Table 1** Summary of the participating schools

| Name | S1 | S2 | S3 | S4 | S5 |
|---|---|---|---|---|---|
| **Owner*4** | Ministry of Human Resources | Ministry of Human Resources | Ministry of Human Resources | Organization of a Christian church | Ministry of Innovation and Technology |
| **Level*1** | primary and lower secondary | primary and lower secondary | primary and lower secondary | (early childhood), primary, lower, and upper secondary | upper secondary, (adult) |
| **Type** | general | general | general | general | vocational |
| **No. of students*2** | 643 | 271 | 402 | 852 | n.d. ~1200-1300*3 |
| **Location** | county capital | small town in the agglomeration of a county capital | midsize town | county capital | county capital |

*1 Educational levels in brackets were not involved in the research

*2 Student number includes only the educational levels that were involved in the research based on 2022 data from https://dari.oktatas.hu/kirpub/index

*3 Estimate based on 2019 data from https://dari.oktatas.hu/kirpub/index

*4 Names of the responsible ministries as of the time of the research, 2021-2022

*Source: Own editing*

In the initial research phase document analysis was conducted, collecting school documents, and reviewing past digital-competence-related reports where it was available. These didn't directly contribute data to the research, instead, they informed data collection.

Data collection was carried out in individual and focus group interviews extended with on-site observation of classes, and if possible, meetings, and workshops. The sampling of interview participants happened purposively, inviting three different groups: school leaders, administrative staff members, and teachers. Individual interviews in the research served the

understanding of school management perspectives; these involved school principals and vice-principals extended by administrative staff representatives. Teachers participated in the focus group interviews to provide space for discussion and debate. Teachers were selected by school principals along the following pre-determined attributes: (1) diverse levels of digital competence (based on the principals' professional judgement), different (2) hierarchic positions, (3) age, (4) duration of school affiliation, and (5) subject backgrounds to avoid biased or wishful images about the organizations. The prepared field notes include a description of the setting, participants, interviews, class and meeting observations, and critical reflection, and were used as supporting research material for triangulation.

The main interview topics were 1) the characteristics of the school's organizational learning, 2) technology usage, and 3) experiences and learnings of the online education period of the pandemic. Altogether 24 interviews were carried out between 11th June and 31st August 2021, 14 individual, 2 in-pair, and 8 focus group interviews. In-pair interviews were designed as individual, but in two cases school leaders insisted on taking the interview together for efficiency purposes. The longest interview took 2 hours and 5 minutes, and the shortest was 46 minutes. 23 interviews have been recorded, transcribed, and coded in the NVivo software. One group interview, where the participants rejected the recording, was taken notes of and then similarly transcribed and coded in NVivo. Cited interview texts in the studies were coded for identification as follows: the first part of the code refers to the school (S1, S2,…), the second part to the interview subject (L=leadership, T=teacher group, A=administrative staff), and the third part provides further specifications (A=administrative staff, P=principal, VP=vice principal, GNo=number of the group within the school).
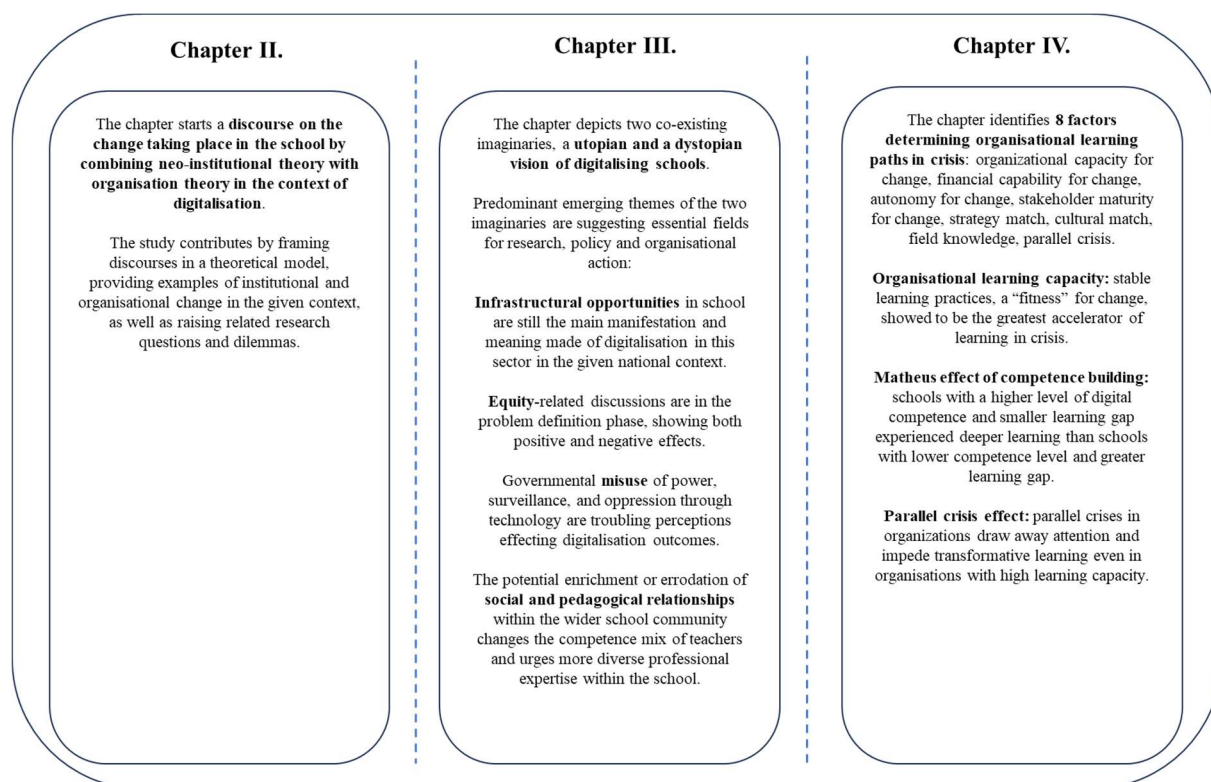
# IV. Research results and contributions

In my doctoral thesis, I explored, in the frame of three published studies, the complex relationship between digitalisation and organizational learning within the context of Hungarian schools, particularly during and after the COVID-19 pandemic. The dissertation offers insights into the multifaceted impact of digitalisation on schools, ranging from the institution to the organization putting the role of interpretation and perception forward.

This doctoral research was designed to contribute to the understanding of the changes brought about by digitalisation in schools, both at the conceptual and local levels. The articles included in this dissertation present novel scientific findings that support this overarching goal.

- In the first study, I explored the intricate relationship between institutional pressures, organizational learning processes, and resultant changes in educational institutions, providing insights into the evolving nature of schools in the digital age.
- In the second article, the applied utopian-dystopian theoretic approach is utilized as an effective methodology for analysing the impact of digitalisation in education, allowing for a balanced assessment of potential benefits and challenges, capturing the complexities of digitalisation and facilitating comprehensive discussions and decisions in this evolving landscape.
- The third article contributes to management studies by examining the interplay between crisis perception, learning, and the inherent nature of crises, offering valuable insights into crisis learning and organizational adaptability.

You can see a summary of the dissertation's contribution in Figure 2. In the upcoming sub-sections, I summarise the contributions of the research papers included in my dissertation.

**Figure 2** Contributions and findings of the dissertation



| Chapter II. | Chapter III. | Chapter IV. |
|---|---|---|
| The chapter starts a **discourse on the change taking place in the school by combining neo-institutional theory with organisation theory in the context of digitalisation**.<br><br>The study contributes by framing discourses in a theoretical model, providing examples of institutional and organisational change in the given context, as well as raising related research questions and dilemmas. | The chapter depicts two co-existing imaginaries, a **utopian and a dystopian vision of digitalising schools**.<br><br>Predominant emerging themes of the two imaginaries are suggesting essential fields for research, policy and organisational action:<br><br>**Infrastructural opportunities** in school are still the main manifestation and meaning made of digitalisation in this sector in the given national context.<br><br>**Equity**-related discussions are in the problem definition phase, showing both positive and negative effects.<br><br>Governmental **misuse** of power, surveillance, and oppression through technology are troubling perceptions effecting digitalisation outcomes.<br><br>The potential enrichment or errodation of **social and pedagogical relationships** within the wider school community changes the competence mix of teachers and urges more diverse professional expertise within the school. | The chapter identifies **8 factors determining organisational learning paths in crisis**: organizational capacity for change, financial capability for change, autonomy for change, stakeholder maturity for change, strategy match, cultural match, field knowledge, parallel crisis.<br><br>**Organisational learning capacity:** stable learning practices, a "fitness" for change, showed to be the greatest accelerator of learning in crisis.<br><br>**Matheus effect of competence building:** schools with a higher level of digital competence and smaller learning gap experienced deeper learning than schools with lower competence level and greater learning gap.<br><br>**Parallel crisis effect:** parallel crises in organizations draw away attention and impede transformative learning even in organisations with high learning capacity. |

*Source: Own edit*

## IV.1.  The School in a Digitalizing World

The advent of the knowledge society and the widespread integration of digital technologies mark a transformative shift in the landscape of schools. School organizations are operating and learning differently than they did even a decade or two ago as a result of the development of digital technologies, notably accelerated by the adoption of online education during the COVID-19 pandemic. These shifts at the organizational level implicitly signal a transformation in the very essence of the institution, enabling it to respond effectively to new expectations and challenges.

Consequently, we need to prepare our schools for a digital world and to do this, we need to understand the dynamics through which schools are changing and have a picture of the role we want them to play. In this, the availability of both national and international literature lags or focuses on the pedagogical field.

To respond to this gap, the first study analyses the interaction of the school as an institution and schools as organizations in the light of digitalisation. It aims to answer the questions, (1) how

is digitalisation changing our image of schools, and (2) how do changes in the school as an organization and the school as an institution interact? It presents

    1.1. the external context, its relations with the institution (March & Olsen, 2011) and the organizations (North, 1990),

    1.2. the dynamics of the school's institutional change,

    1.3. the isomorphic change (DiMaggio & Powell, 1983) of school organizations

    1.4. and organizational learning (Argote, 2011) aspects.

The study contributes by framing discourses in a theoretical model, combining neo-institutional theory with organizational theory in the context of digitalisation, as well as raising related research questions and dilemmas. The aim of this paper is to urge further academic discussions and empirical research on the role of the school in a digitising world, promoting a discourse on the unstoppable change unfolding in the institution and the evolving requirements of school management.

Suggested future research directions set related objectives, such as the examination of the organizational effects of digital education policy interventions at national and international levels and the role of attitudes of school citizens and other stakeholders in the transformation process. Furthermore, managerial issues, such as how to manage digital schools differently in terms of HR, financing, logistics and many other management tasks, if ICT is to be put at the service of more effective delivery of school goals, are to be explored.

## IV.2. Digital Utopia and Dystopia of Schools after the COVID-19 Pandemic

This paper aims to capture the digital imaginaries of Hungarian schools through the lens of digital utopianism (Dickel & Schrape, 2017) as a theoretical framework. This approach ties this research to discourse about digital school futures (OECD, 2020) and imaginaries (Jasanoff, 2015). This study sets out to answer the research question: What are the dreams and fears of school leaders and employees regarding digitalisation in schools influencing their attitudes toward increasing involvement of technology?

The article explores utopian and dystopian perspectives on digitalized schools in the Hungarian education system, The study contributes by the following key findings:

    2.1. The research results depict two co-existing imaginaries, a utopian, and a dystopian vision of digitalising schools. By getting acquainted with these, one can gain an

overview of the hopes and fears of educational professionals. Themes emerging from the two imaginaries suggest essential fields for research, policy, and organizational action, which are additional contributions of the paper.

2.2. Results have shown that infrastructural opportunities in the school are still the main manifestation and meaning made of digitalisation in this sector in the given national context. Consequently, inefficiencies in this field influence attitudes and prospects greatly, on the managerial decision level as well.

2.3. Results suggested that digital equity-related discussions are in the problem definition phase based on the narratives of both imaginaries. These forecast both positive and negative effects of digitalisation and were less frequent or in-depth elaborations of potential future scenarios and necessitate the observation and analysis of practices in the sector.

2.4. Governmental misuse of power, surveillance, and oppression through technology are troubling perceptions affecting digitalisation outcomes based on the results of the research. Empirical evidence, or even discussion about governmental misuse of digital surveillance either in Hungary or abroad is scarce, probably due to the nature of the topic as well. Hence, it is an essential discussion to have in critical academic studies and an important direction for future research.

2.5. The results also foreshadow both the enrichment and errodation of social and pedagogical relationships within the wider school community. This complex set of changes alters the necessary competence mix of teachers and urges more diverse professional expertise within the school; even destabilising the role of professional teachers. The study recommends multidisciplinary research in this field to better understand how to create better human resources concepts and management within schools, making sure that educational expertise does not get discarded.


### IV.3. Understanding Crisis Perception and Organizational Learning: A Case Study of School Organizations in the COVID-19 Pandemic

This research delves into the organizational dynamics of learning-in-crisis (LiC) (Antonacopoulou & Sheaffer, 2014) in Hungarian educational institutions in the context of the COVID-19 pandemic, specifically focusing on digital competence development and the impact of organizational perceptions of contextual factors. The primary research question addressed is: What factors influence the learning paths of the observed organizations, and how?

The research observes pandemic-crisis-induced digital organizational learning resulting from the imperative shift to online education, and analyses the learning paths within organizations resulting from the crisis event, considering factors such as the perceived impact and relevance of the rare event based on Lampel and colleagues' model (2009), with an examination of influencing factors.

Results of the qualitative empirical research show the following:

3.1. Learning willingness, determined by perceived impact, is different in the face of an identical external impact, influenced by organizational and financial capacity, as well as autonomy and stakeholder maturity for change. The depth of learning, determined by perceived relevance, is related to strategic and cultural match with the sought-out competence, as well as field knowledge and the presence of parallel crises.

3.2. Stable learning practices, a "fitness" for change, that can be called learning organizational maturity as well, showed to be the greatest accelerator of learning in crisis. Findings correlate with Kopp & Pesti's (2022) findings.

3.3. Schools with a higher level of digital competence and smaller learning gap experienced deeper learning than schools with a lower competence level and greater learning gap, similar to the Matheus effect.

3.4. Parallel crises in organizations draw away attention and impede transformative learning even in organizations with high learning capacity. This observed phenomenon can be explained by the attention-based theory constructed by Ocasio (1997), however, empirical research results seem to be scarce on organizational learning in parallel crisis situations, hence, I consider this as a unique contribution of the research.

3.5. Interestingly, in the specific research context network learning effects, which are typical characteristics of crisis action in the literature (Robin et al., 2019) did not appear in treating the challenges, especially not in an interdisciplinary manner (Broekema et al., 2018) (e.g., working with IT specialists from the for-profit sector) which can be very beneficial in handling crises. In cases it did happen, it happened within the formal education system (e.g., with social workers, fellow principals), or on the individual level (e.g., Facebook groups, family members).

All in all, this study contributes to organizational crisis-learning literature by viewing crisis not as an external force, but as an internal gap revealed by external or internal rare events and suggests that learning results from the organizational perception of this gap. The results of the research show that learning paths within the crisis are influenced by the organizational

perception of the impact and relevance of the crisis. Consequently, the same crisis can be interpreted very differently in various organizational and management contexts.

Overall, this doctoral research was designed to contribute to the understanding of the changes brought about by digitalisation in schools, both at the conceptual and local levels. The articles included in this dissertation present novel scientific findings that support this overarching goal. Beyond the empirical research and its outcomes in the form of the included articles, this dissertation offers further value, especially in the local, and national context, the summary presented about the Hungarian educational ecosystem in relation to digitalisation is a unique added value of this dissertation.

# V. Author's publications in the field

*Journal articles*

1. Fazekas, N. (2023). Iskola a digitalizálódó világban. *Educatio,* 32(2), 339-347. https://doi.org/10.1556/2063.32.2023.2.12

2. Fazekas, N. (2023). The sectorial context of workplace learning. *Journal of Adult Learning, Knowledge and Innovation*, 6(2), 75-83. https://doi.org/10.1556/2059.2023.00086

3. Fazekas, N. (2024). Digital utopia and dystopia of schools after the COVID-19 pandemic. *Research in Education,* 119(1), 44-64. https://doi.org/10.1177/00345237231219149

4. Fazekas, N. (2024). Understanding crisis perception and organizational learning–A case study of school organizations in the COVID-19 pandemic. *Vezetéstudomány-Budapest Management Review*, 55(7-8), 45-58. https://doi.org/10.14267/VEZTUD.2024.07-08.05

*Conference papers and other publications*

1. Fazekas, N. (2020). Towards a Knowledge-based View of the School : Comparative Analysis of Key Literature. In B. Horváth, Z. Kápolnai, & P. Földi (Eds.), *VI. International Winter Conference of Economics PhD Students and Researchers: Conference Proceedings* (pp. 73–81).

2. Fazekas, N. (2020, May 10). *Immunitás vagy visszaesés? Avagy mire lesz jó a vírus az iskoláknak?* Tani-tani Online, https://www.tani-tani.info/immunitas_vagy_visszaeses

3. Fazekas, N. (2021). Learning Organizations and Organizational Digital Competencies in the Field of Public Education. In M. Baksa, N. Fazekas, & V. Harmat (Eds.), *New Horizons in Business and Management Studies: Conference Proceedings* (pp. 25–36). https://doi.org/https://doi.org/10.14267/978-963-503-867-1_03

4. Fazekas, N. (2022). Learning-in-crisis: Learning paths of Hungarian schools in the Covid-19 pandemic. In D. Danó, K. Horváth, O. Nagy, & G. Varga (Eds*.), Embracing Change and Transformation: Conference Proceedings* (pp. 7-18).

5. Fazekas, N. (2022). Digital Utopias and Dystopias of the School after the Covid-19 Pandemic in Hungary. In M. Benke, R. Schmuck, & B. Riedelmayer (Eds.), *3. Farkas Ferenc Nemzetközi Tudományos Konferencia: „Menedzsment forradalmak": Konferenciakötet* (pp. 184–195).

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