

Welcome

Our fourth English-language issue, which will be published in 2022, was compiled in the spirit of the effort to convey the research themes emerging in the world of training and work with the writings of primarily young researchers at the beginning of their research careers. Of course, the writings of more mature researchers dealing with the young generation in scientific continuing education and doctoral schools are also present. As the first article in the **Studies** section, *Zoltán Szűts'* study entitled "Learning in an attention-based economy and society" is an example of this, in which the author deals with the theoretical issues of digital pedagogy draws attention to new phenomena. An example of mentoring the work of beginners is the article by *Csaba Bráda* and *Monika Pogátsik* related to the training profile of our paper, which under the title "Educating mechanical engineers in the 21st century" also conveys the future orientation of researchers.

Andrea Lukács's article, "Knowledge Management as a powerful tool to increase competitiveness," confirms the broadening of the research spectrum. Furthermore, the title "Exploring interrelations of knowledge management and adult learning in the context of the learning organization" illustrates the multidisciplinary approach that expresses the essence of the professional mission of Opus at Educatio. Also, the young researcher, who already published in our columns, is one of the trio – *Mariann Fekete-Péter Tóth-Adam Nagy* – who deal with the topic of environmental pedagogy, which can also be treated as a pedagogical challenge that concerns many today, "Who will save the world? – from the missing hero to the index of Captain Planet" can even be considered a keynote in their article.

Most of the writings in the **Consciousness** section come from young people whose first publications are also related to the first steps of being a researcher and present their first writings as young researchers. Scholarship recipients from the Hungarian doctoral school in education represent the first group, *Moet Moet Myint Lay* writes about the quality issues of teacher training. As the representative of the second group, *Krisztina Stummer* undertook an institutional-historical overview of vocational training opportunities for women. At the same time, *Attila Mészáros* analyzed the issue of the possibility of developing emotional intelligence from the point of view of education.

Among the international projects, *Andrea Óhidy* undertook another presentation, presenting the activities of the Monnet Chair Freiburg for European Education (JMC-FrEE).

This issue also ends with the usual book review. In addition, the *Anikó Kálmán* undertook to present his recently published study volume entitled "The methodology of educational informatics in higher education" published by Károli Gáspár Reformed University ICT Research and Continuing Education Center (2020).

Dear readers, I would like to present to all attention the fourth issue of the 2022 edition of **Opus et Educatio**, the 35th issue of our magazine, which has been published regularly for eight years. I wish our authors and readers a professionally successful 2023!

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András Benedek, editor-in-chief

Zoltán SZÚTS

Learning in an attention-based economy and society¹

Introduction

The information society has transformed the routines associated with learning that we have brought into the 21st century from the context of print books and electronic media. For example, the sharp boundaries between children and adults have faded, and virtual environments of open education have replaced traditional schooling. At the same time, work, leisure, and learning can no longer be separated (Benedek, 2008).

Nevertheless, the most significant change is related to the new social currencies. These include trust, as individuals increasingly have to hand over control to machines and algorithms, and trust that systems will always be at their disposal when working, learning, or even travelling. When this trust is realized, they can do their job more efficiently and get where they want to go faster and safer. It is also based on trust in the algorithm recommendation system or the fact that soon you will not only hand over the steering wheel to the self-driving car, but the steering wheel itself, and with its control, will seemingly disappear, and trust will be the thing that will control your vehicle. Trust is the basis for its interaction with the community, supported by digital technology. It engages in discourse, collaborates, trades, or builds its future, in large or small parts, on the wisdom and opinions of thousands of unknown people. Companies treat trust as a valuable resource or even capital. An equally valuable resource or convertible currency is attention.

Attention is increasingly valuable because it is dispersed in the information society. The digital ecosystem, including smart devices and social media, is trying to capture as much of individuals' attention as possible, offering them different content and experiences. While devices and platforms can sell this attention to advertisers by aggregating it, individuals' attention needs to be more cohesive. This fragmentation harms the learning process and is no longer just a topic of everyday discourse. However, in Italy, due to the decision of Giuseppe Valditara, Italian Minister of Education, smartphones will be banned from classrooms immediately in December 2022. The devices will only be allowed if they meet predefined didactic or training objectives, always under the strict control of the instructors. On the impact on attention and the mind, the minister compared the devices to cocaine.²

The paper highlights and focuses on the issue of attention, as it is more strongly related to learning than confidence. One of the key assertions of educational researchers is that we have moved from a hyper-attentive to a deep-attentive era, moving from verbal to written culture. In this study, the authors argue that the digital and internet revolution has brought us back to a hyper-attentive state, where interaction and interruptions are the main focus. At the same time, our school system is still based on strict attention for the most part.

The study's starting point is that we have entered a new level of the information society, where attention is one of the central values. Therefore, we call it an attention-based society. Practical experience has shown that the communication processes facilitated by social media and smart devices now have a more significant impact on the learning and teaching process than, for example, the curriculum, the teacher, or even the methodology. By contrast, most of the issues discussed at education conferences still revolve around curriculum, methodology, or inclusiveness, which only resonates with the changes generated by digital technology. These issues are essential, but digitalization's impact will radically shape pedagogical change in the coming decades. As a result of the

¹ This paper was supported by the János Bolyai Research Scholarship of the Hungarian Academy of Sciences.

² <https://time.news/italy-bans-cell-phones-during-classes-and-compares-them-to-cocaine/>

strategies and practices mastered in algorithm-driven social media, we must now look at the most critical challenges in education through the lens of digitalization.

The study focuses on the phenomenon of attention to information selection and processing habits that affect pedagogy, the high degree of experientiality and flow in social media, the expectations of instant feedback, and the system of communication-based rewards.

In our provocative approach, in the information society, of which the attention-based economy is a prominent part, the communication processes determined by social media and smart devices already have a more significant impact on the learning and teaching process than, for example, the curriculum, the teacher or even the methodology. The consequence of the communication strategies, practices, and rites of passage adopted in algorithm-driven social media with personalized content is that the most critical challenges in education today need to be seen through digitalization and communication science.

The attention-based society

Since the 1990s, the growing penetration of the Internet has led to increasing content and services on the web. Individuals spend more and more time-consuming online content and communicating with other users, initially out of curiosity, and then increasingly for work and, to a lesser extent, learning. As a consequence of being online, some aspects of learning, such as obtaining information or even interacting with peers, have moved online and governments themselves have launched online education portals. The 2000s saw the opening up of read-only online platforms to users who could create and share content, a revolution of Web 2.0 (Gerencsér 2019, Tófalvy 2017). The previously passive position of the user was transformed into that of the active communicator. In the information society, which is the heir of an industrial society, the production, distribution, dissemination, use, or even management of information is a principal economic, political and cultural activity (Molnár et al. 2022:81).

This brings us to the 2020s, where the specific, dynamically expanding segment of the information society is the attention-based society and the related attention-based economy. Attention-based economics is an approach to information management that treats human attention as a scarce commodity. Digital technology, networks, and various algorithms are generating an ever-increasing amount of data and content, more and more of which is personalized (see, for example, Facebook ads or content recommended according to various pre-established preferences). Since human perception is finite, the ability to select between signals, in reality, narrows the choices. Attention with finite capacity thus becomes a value like precious metals.

The process began a generation and a half earlier, in 1990, when the web gave access to unprecedented amounts of information. This change has affected not only the economy but also the daily lives of users, society, and the way we communicate, consume media and learn and teach. The complexity of communication channels and media has increased considerably in an attention-based society. This complexity hurts attention, as the evolution of the human mind cannot keep pace with change. Moreover, experiential content is competing with each other at an ever-increasing rate; videos are getting shorter. The result is that attention is divided and fragmented, and the individual's mind becomes saturated and exhausted.

Educational challenges of an attention-based society

Education in this overflowing information society needs to redefine itself and use the tools and content of the web to organize teaching and learning processes. According to Bertalan Komenczi, the spread of info-communication systems is irreversibly changing the information environment in which individuals live. Networked computers and digital content are creating, in the process of convergence, a new universe of knowledge in a diverse world of information, telecommunications, mass communication systems, and institutions (Komenczi, 1999). This new hypermedia, interwoven with links and multimedia content, will make information available anywhere and anytime, but it is

attention that will be the necessary raw material for selection processes. Algorithms, however, put attention to sleep.

It has a prominent role in education, with several essential works published, but it is not a high priority in educational research. Research on digital pedagogy also considers the topic as a secondary one, even though in the digital ecosystem, the attention of learners in the classroom is often divided between the information provided by the teacher and the digital content on the screen. A practical example of this is that when learners use their digital tools in a learning process in a way that is not appropriate to the purpose, their interest quickly turns not to the knowledge the teacher is trying to convey but to content related to other subjects, essentially social media (TikTok, Instagram, Facebook) or even real-time communication - chat. Experience in higher education has shown that in huge lecturing halls, it is a typical image of students looking at each other's laptop screens and not at the teacher's lecture (Hadlington, 2015). Based on this experience, in a world of screens, networks, interactive digital content, and algorithms, we need to re-identify the factors that shape the design and management of teaching and learning in formal education (in organized, accredited institutions).

György Csepeli and Gergő Prazsák point out the phenomenon, which is closely related to the practice of learning and teaching. The role of memory is changing; the new culture means, among other things, that we must learn to search. Our brains have more space for thinking and creating. Internet use in society reaches a critical point when it loses its technological novelty value and becomes linked to culture." (Csepeli & Prazsák, 2010:13). Digital technology and the new forms of communication and media platforms that it brings have the potential to transform educational practices on an unprecedented scale. This also means that using digital technology in education can have extreme consequences. Intended use of technology that considers both pedagogical goals and the nature of technology can significantly increase educational effectiveness.

In contrast, the opposite can lead to a drastic decrease in effectiveness. The new ICT and social media are disruptive (creatively disruptive) because they can have a profoundly positive or negative impact on learners' attention, cooperation, or motivation. In the past, using any medium or technology in education did not carry many benefits but also dangers (Szűts, 2021). However, the educator community still deals with the topic basically at the level of tool management competencies.

In an attention-based society, information management practices related to learning and teaching are essential. This 21st-century competence is in the field of communication and includes the search, filtering, evaluation, sharing, revision, and protection of information. Since the 1990s, with the advent of the World Wide Web, the online ecosystem and its hypertextual environment of links has enabled the rapid acquisition of knowledge independent of time and space. Contrary to the Gutenberg tradition, the practices of the web, for example, still need to provide more guidance in selecting authoritative sources. However, in the present, it is clear that the attention-based online ecosystem has taken over the practices of print and electronic media designed to capture individuals' attention. Reality bending (Balázs, 2022), merging facts and opinions, disinformation or even fake news has moved from the tabloid press and conspiracy theories of closed online forums to the world of personalized social media. For example, clickbait headlines capture attention and take users' time away from learning activities. In this environment, the importance of learning selection routines developed in the face of information overload increases, but the education system does not provide sufficient practices to acquire them. As hyperlinks allow learners to scroll through information, they leave the world of textbooks and encounter a surge of reality, especially on social media. With the rise of fake news, images of war suffering replaced by sexual content, communication awareness is often lost, and social media tugs at the emotional focus. Lászlóné Majzik summarises the impact of the network on the teaching-learning process in the fact that online platforms allow a large (unlimited) amount of information to be stored and retrieved, which may call into question the planned development of memory skills. The author points out that the exercises for developing the ability to memorize are enriched with a new function: 'the task of counteracting the instantaneous information broadcast by the media. Learners must acquire the ability to distinguish between information and what is necessary to retain in memory from what is superfluous.' (Majzik 1997).

One of the essential pairs of attention in the digital ecosystem is multitasking and interactivity. Multitasking is "actually a lot of extremely rapid switching between tasks competing for our cognitive capacity, [but an important pedagogical question is] whether this rapid switching between tasks is useful for students, whether it makes the learning process more efficient, and whether the quality of performance of each task is not compromised." (Nádori & Prievara, 2018). In multitasking, learners' attention (users) is not focused on a single activity but results in attention sharing. A serious disadvantage is that deep attention, for example, is pushed into the background. At the same time, the attentional focus becomes shorter, but an advantage is that the user can absorb information on a broader scale. One of the centers of the attention economy is the display, to which the user's gaze is directed. Learners' interests are often not driven by intrinsic curiosity but by search engine and algorithm suggestions. Dozens of daily visits to sites, the compulsion to self-represent in the form of selfies, and microblogs distract from the need to gather and select information and make online exposure a routine practice, constantly blurring the boundaries between private and public spheres. The active scrolling of the endless message boards of social networking sites forces students to continually consider whether what they see there conforms to unrealistic norms and standards. All these exercises take place within minutes of each other. They require a brief but concentrated attention span, making a novel of several hundred pages seem virtually impossible for students and an endless task in time. The rapidity of the information-gathering exercise also fosters a sense of impatience rather than the in-depth research expected in the present and the understanding of the facts, stories, and principles behind the phenomena.

In practice, multitasking has been observed to affect attention in the classroom. The use of media by individual students, multitasking between smart device applications or between smart devices and computers, has a significant impact on the functioning and dynamics of the classroom community. The results also show that the performance of students who watched content on other people's screens was reduced. Therefore, this activity was a distraction, as they focused on alternating, attention-grabbing content on the screen instead of information shared by the teacher. We hypothesize that learners who multitask daily are slower to notice changes in visual patterns and more likely to misremember previously learned information. Levente Székely points out that multitasking is related to the transformation of the concept of time, as time and space are not given as an alignment framework but as changeable parameters (Székely, 2017). Therefore, we should prescribe the kind of lesson planning in which digital media always serves the teaching goals, and the communication processes should be channelled into the lesson. This could be the practice of browsing and searching for resources related to the subject matter in a multitasking context or the communication during group work while editing content, which can be immediately copied into the product.

Before the World Wide Web, the character-based Internet was also a way to exchange information quickly, access library databases, or even correspond. However, the medium needed several elements that define online communication and media today: exciting content with links, high-resolution visuals, the ability to create in a digital environment that also supports the experience of flow, and a high degree of experientialism. Digital tools are associated with many positive experiences but also with stress. Education in digital environments and networks is also embedded in the communication and media science system regarding experience, creativity, flow, anxiety, or instant gratification. In this field, the knowledge of communication and education science is split. In the former, the positive effects, the pleasure of involvement or discovery, have been a significant factor in the spread of ICTs in recent decades, fostering the desire in users to buy digital devices and connect to the network online. Users tolerate the failures of systems and seek new solutions. At the same time, the adverse effects on individuals of using these tools for pedagogical purposes can quickly give rise to a sense of failure. The consequence is that users - in our case, teachers and students - turn away from technology, and only those fearless of making mistakes continue to use it. Unreliable devices that can only interact with a delay, and intermittent video playback, can cause stress in students and teachers alike, which can hinder the learning process and thus have the opposite effect to that intended by the learning objective. In contrast, an unstable application or a slow internet connection during leisure time has

only been found to cause significant stress if the user is playing a game, engaging in a time-sensitive activity, or is in a competitive situation.

All these phenomena are related to the experience of flow. At the heart of Mihály Csíkszentmihályi's flow theory is the peak experience and its experience. This peak experience is achieved when the individual becomes deeply absorbed in an activity. The perfect moment is the flow, which is the unity of joy and creativity (Csíkszentmihályi, 2014). Since the individual perceives time differently during flow and becomes immersed in the activity, it seems obvious to apply the theory to the online environment, which developers of applications and tools are also doing. For example, in learning, the flow is hindered by the sheer volume of information flooding in, which, as we have discussed, distracts attention and dissipates the ability to focus. So learners need considerable self-regulation and media awareness to immerse themselves in learning activities with digital tools. The interactivity inherent in online media allows users to exercise control over the creation and content and, to some extent, the flow, thus arbitrarily defining peak and trough points and flow points. In learning with digital tools and networked environments, flow is manifested in the creative process of making, for example, in digital storytelling, where the learner becomes absorbed in the creation. According to Sándor Forgó (2014: 81), the experience can also be interpreted as the – online flow experience world – of the producer-consumer (prosumer), since in the online space, we move forward, step by step, from side to side, almost imperceptibly, even in a flow state, while a firmly focused attention characterizes our mental state, often by a change in the perception of time and by self-absorption and (apparently) aimlessness.

Previously, websites that loaded up computer screens and, since the 2010s, social media content that has taken up a significant amount of screen time on smart devices have changed how knowledge is managed and claims are made, proven, and argued. The academic hierarchy that prevailed in the printed book system and even in the electronic media system no longer lasted. There are far fewer institutionalized knowledge holders; to use a somewhat simplistic term, anyone can become an opinion leader online. One practical manifestation of this is that in the Covid outbreak, the debate on viruses and vaccines on screens is so severe that academia has joined the discourse alongside the general public and sceptics, and it is unclear which side will 'win the battle' to take the position of authority. One reason is that the democratization of online media - and the proliferation of freely writable databases - means that anything can be claimed, and the opposite can be claimed. Moreover, a significant community can be organized behind these claims, given sufficiently experiential content.

The expectation of immediate feedback

One of the characteristics of social media is an immediacy and the system of instant feedback closely linked to it. While these phenomena help to speed up communication, they are a significant challenge in education. Students evaluate themselves, their appearance, or even the importance or success of their activities in light of the instant likes they receive on social media. In contrast, it still takes teachers several days to improve an essay and get feedback on the results. The consequence of this high level of interaction through tools is that individuals develop a need for immediate feedback, making school communication slow for learners (Wilmer & Chein, 2016:81). Social media has created a dependence on direct feedback. At the same time, education through ICT cannot meet the need for quick and high levels of input generated by algorithms simply because of the lower number of interactions. One consequence of this is that students' attention in the classroom – if they are allowed to use smart devices but are not given specific instructions and the task is not sufficiently experiential – is diverted towards social media platforms or even real-time communication platforms and interactive content, where they receive immediate rewards. The always-online state, palm-worn smart devices, real-time communication, and social media all lead to an instant increase in dopamine levels. For example, when an individual waits for a message, they check their smart device more often than usual. When the notification of the message appears, dopamine levels spike and then suddenly drop. A loop develops, and it becomes increasingly difficult to stop checking what signals you are receiving from your device. This can negatively impact motivation and distract from the learning process, during which feedback is much less frequent (Robertson, 2017). In this way, instant gratification, combined with multitasking,

can become a factor that makes learning difficult. This constant readiness diverts learners' attention and focuses away from the task at hand, preventing immersion. This prevents the flow that helps understanding and the long-term storage of knowledge in memory.

Conclusion

Education is familiar with the role of attention in learning, but the issue has yet to be explored in detail in digitalization. This is because digital pedagogy has so far focused mainly on the use of tools and methodologies. An important area for future research could be to investigate the impact of smart devices and social content on the attention of individuals in terms of what is expected of education in this changing learning environment.

References

- Brigitta, Balázs & Andrea, Fodor & Éva, Karl & György, Molnár (2022). A digitalizáció aktuális kérdéskörei, kihívásai napjainkban a fenntartható fejlődés szemszögéből. *Szabad Piac*. 2022/1, 79-94.
- Géza, Balázs (2022). *Tudományháború: intellektuális imposztorok*. (blog) <http://www.balazsgeza.hu/?p=13277>
- András, Benedek (2008). *Digitális pedagógia: Tanulás IKT környezetben*. Budapest, Typotex.
- György, Csepeli & Gergő Prazsák (2010). *Örök visszatérés? Társadalom az információs korban*. Budapest, Józsefvég.
- Mihály, Csíkszentmihályi (2014). *Flow and the Foundations of Positive Psychology. The Collected Works of Mihaly Csikszentmihalyi*. Dordrecht, Springer.
- Sándor, Forgó (2014). Az újmédia-környezet hatása az oktatásra és a tanulásra. *Könyv és nevelés*. 2014/1, 76-85.
- Péter, Gerencsér (2019) Bevezetés a web 2.0 definícióiba és ideológiáiba. *Apertúra*, 2019/2. <https://doi.org/10.31176/apertura.2019.14.2.1>
- Lee, J. Hadlington (2015). Cognitive failures in daily life: Exploring the link with Internet addiction and problematic mobile phone use. *Computers in Human Behavior*, October 2015. 75-81. <https://doi.org/10.1016/j.chb.2015.04.036>
- Bertalan, Komenczi (1999). Off line – Az információs társadalom közoktatási stratégiája. *Új Pedagógiai Szemle*, 1999/7-8. 160-180.
- Lászlóné Majzik (1997) Oktatás-rejtett kincs – Delors-jelentés a XXI. századi oktatásról. *Új pedagógiai szemle*. 1997/11. <https://epa.oszk.hu/00000/00035/00010/1997-11-ta-Majzik-Oktatas.html>
- Gergely, Nádori & Tibor, Prievara (2018). *21. századi pedagógia*. Budapest, Akadémiai Kiadó. <http://doi.org/10.1556/9789634541028>
- Reece, Robertson (2017). *Why You're Addicted to Social Media — Dopamine, Technology, and Inequality*. Medium, December 19, 2017, https://medium.com/@Reece_Robertson/why-youre-addicted-to-social-media-dopamine-technology-inequality-c2cca07ed3ee
- Levente, Székely (2017). (Média) multitasking. In: Rab Árpád (2017 szerk.) *Csomópontok - A digitális kultúra jellemzői és egymásra hatásuk*. Budapest, Gondolat – INFONIA – Óbudai Egyetem Digitális Kultúra és HumánTechnológia Tudásközpont. 185–203.
- Zoltán, Szűts (2021). Algoritmusok vezérelte sorsok. *Szabad Piac*, 2021/1. 18-23.
- Tamás, Tófalvy (2017). *A digitális jó és rossz születése: technológia, kultúra és az újságírás 21. századi átalakulása*. Budapest, L'Harmattan.
- Henry, H. Wilmer & Jason, M. Chein, (2016). Mobile technology habits: patterns of association among device usage, intertemporal preference, impulse control, and reward sensitivity. *Psychonomic bulletin & review*, 2016/5. 1607–1614.

Csaba BRÁDA – Monika POGÁTSNIK

Educating mechanical engineers in the 21st century

Changes in the macro-environment during the 4th industrial revolution

Industrial revolutions have radically changed past technologies, thoroughly transforming working conditions and people's lifestyles. In the first industrial revolution, the steam engine replaced manual labor. The second industrial revolution enabled mass production based on the use of electricity. In the third industrial revolution, the development of computers and internet-based information systems modernised automation.

In the Fourth Industrial Revolution, the Internet of Things (IoT), cyber-physical systems, and artificial intelligence transformed work (Penprase, 2018; Lee et al., 2018). The new processes and new tools change not only the way we work and consume but also the way we think. The rate of obsolescence of acquired skills has accelerated. The fourth industrial revolution does not have a single, central, leading technology like the previous three. However, systems based on high-speed internet networks and new interfaces, artificial intelligence, big data analytical models, and new developments in manufacturing technology offer unprecedented opportunities. The networking of manufacturing systems (Mourtzis, 2020) leads to the creation of smart factories, where manufacturing systems and people communicate with each other over a network, and production is almost automatic (BCG, 2015).

In our study, we compare the period of the 3rd Industrial Revolution with the industrial environment of our time, the period of the 4th Industrial Revolution, focusing on the changes in the mechanical engineering profession. To successfully implement Industry 4.0, experts are highly needed to build and maintain new smart factories (Fomunyan, 2019). Therefore, mechanical engineering students must acquire a combination of classical mechanical engineering and computer science (Fernandez-Miranda et al., 2017). Furthermore, the industrial sector is looking for professionals who are prepared for emerging challenges (Kulacki, 1996). Therefore, higher education must provide a training environment where future professionals in the industrial sector can acquire the necessary competencies (Azmi et al., 2018). Therefore, we aim to identify the specific competencies that future mechanical engineers will need from an Industry 4.0 perspective.

Several studies have addressed the so-called 21st-century competencies (Neumann et al., 2021); for example, the most frequently mentioned competencies for engineering careers include motivation, passion, dedication, changeability, initiative, organisational awareness, analytical thinking, creativity, logical and mathematical skills, collaboration, and problem-solving (Dankó, 2019). In addition to the importance of soft skills in the era of Industry 4.0, hard skills are also worth reviewing and emerging as new elements that should be present in higher education. Industry 4.0 requires new, skilled engineers with innovative knowledge.

Basic Research Concepts: aim and method

In our research, we seek to answer the question of where and what changes in the mechanical engineering students' training system will help them better meet the labor market requirements of the 4th industrial revolution after graduation. The diversity and changing needs of the partners over time require periodic review, evaluation, and modification of the training courses.

As a first step, a brief overview is given of the changing definitions and content of the term engineer and, within this category, a mechanical engineer. In addition to the official definitions, we also looked at how the professional community involved in the training process defines the identity of an engineer and a mechanical engineer. The changes in the officially defined terms over time, focusing on

mechanical engineering in the following, clearly indicate an expansion of the content elements, which can be traced back to technical and technological developments (Gábor Szász, 1994).

In the process of defining and interpreting the concept and content of the engineer and, within this, of the mechanical engineer, the next question arose. What image do students who become mechanical engineers have of their chosen, studied career? In our research, we, therefore, surveyed mechanical engineering students as a second step after clarifying the definitions. Our association questionnaire consisted of 4 questions about the professions and activities of engineers and mechanical engineers. The questionnaire was paper-based, and keywords were used to define the terms engineer and mechanical engineer, while a simple quantitative assessment was used for the categories.

In the third part of our research, we examined the training of mechanical engineers from the early 1970s, the period of the strong development of the Hungarian industry, and its changes in time and content. In this chapter, we used quantitative methods to analyse the content of the available training documents and examine the data that appear as databases.

Definition and content of the terms engineer, mechanical engineer

If we look back at the origins of the word engineer, we have to go back to 13th and 14th century England, where an engineer was the person who invented, built, and operated a military structure. At that time, engineering was divided into two categories: military engineering and civil engineering. The former was concerned with constructing fortifications and military engines, and the latter with non-military projects such as bridge building. With the development of technology, the scope of the term has gradually expanded to include the construction and operation of all kinds of machines and mechanical devices in addition to military equipment (Zhang & Yang, 2020). The spread of the term and the interpretation of its meaning that still exists today can be linked to the first industrial revolution.

The Hungarian word 'mérnök' (engineer) originally referred to a surveyor, the geodesist of today. Mechanical engineer and chemical engineering were created around the first industrial revolution. By the end of the 19th century, the term architect had also been changed to architectural engineer.

In the 19th century, engineering activities were extended to include architectural, metallurgical, mining, and surveying engineering. In the 20th century, it included electrical, transport, and civil. In Hungary, the number of engineering categories will reach 18 by 2022. Moreover, each engineering category includes additional subcategories – engineering jobs – typically appearing in university education as specialisations.

According to the 1916 edition of the Hungarian Révai Encyclopaedia, the official definition of the word engineer is "any person who is engaged and qualified in the application of technical instruments and sciences". The term's meaning has not changed much in the New Hungarian Lexicon of 1962 or the dictionaries of the most recent lexicons. All these definitions link engineering to a university or college degree.

If we try to define the term 'mechanical engineer', also based on the 1916 edition of the Révai Encyclopaedia, then 'mechanical engineer' means 'an engineer, a machinery builder who has obtained a higher theoretical qualification and who has received his training in this field at any technical college'. They can be categorised into two groups according to the extent to which they serve the machine-building industry through their manual dexterity or by the academic and practical qualifications they have acquired in vocational-technical schools with scientific training. The former are the machine workers, so-called machinists, turners, and fitters, and the latter is machine technicians and mechanical engineers' (Révai, 1916).

Higher education in engineering careers in Hungary began in the 18th century in two cities, Selmecbánya and Budapest. The first engineering school in Hungary was the Selmecbánya Mining Academy, founded by Charles III in 1735. The Selmecbánya Academy taught mathematics, mining

engineering, and other mining and metallurgy subjects. Maria Theresa granted the Academy the status of an academy in 1770, and students from as far away as South America came to the school.

Joseph II signed the founding decree in 1782, establishing the Institutum Geometricum, the Institute of Engineering. The decree also stated that only those who had passed a public examination at the university could apply for a public engineering post, thus giving prestige to the school and the engineering profession. The Institutum Geometricum preceded the famous French École Polytechnique by 12 years. The main subject of the two-year course was applied mathematics, with 8 hours a week of surveying and hydraulic engineering. The 25 hours a week included 5 hours of agriculture, 2 hours of architecture, 4 hours of astronomy, and 1 hour of mechanics. To obtain the degree, students had to pass final exams in trigonometry, surveying, hydraulics, hydro-technology, mechanics, and economics. The Institute of Engineering was abolished in 1850 and attached to the Joseph Institute of Engineering, founded in 1844.

The first technical higher education institution in the world to bear the word university in its name was the Joseph University of Technology. The three departments set up in 1871 were the university, the engineering, and the mechanical engineering. In addition, the departments of architecture and chemistry started in 1873, and in 1914 a postgraduate department of economics was created. The five departments awarded separate diplomas to students who passed their examinations (Tarsoly, 2000): engineering, mechanical engineering, architectural engineering, chemical engineering, and financial engineering.

In 1914, technical higher education provided engineering degrees in 2 locations in Hungary in 7 different categories. This number has increased to 11 till 1962 (Berei, 1962), today the FEOR-08 occupational catalogue lists 18 engineering occupations (FREOR-08, 2022), and felvi.hu has 26 different engineering BSc degrees in 2022 (felvi.hu, 2022). The expansion of the different categories of engineering professions is summarised in Figure 1.

1. Figure: Engineer categories

1914	1962	2022
<ul style="list-style-type: none"> •architectural engineer •chemical engineer •economic engineer •engineer •mechanical engineer •metallurgical engineer •mining engineer 	<ul style="list-style-type: none"> •agricultural mechanical engineer •architectural engineer •chemical engineer •electrical engineer •forestry and wood industry engineer •general or cultural engineer •mechanical engineer •metallurgical engineer •mining engineer •surveying engineer •transportation plant engineer 	<ul style="list-style-type: none"> •aeronautical engineer •architectural engineer •bioengineer •chemical engineer •civil engineer •electrical engineer •energy engineer •environmental engineer •fire protection engineer •industrial product and design engineer •light industrial engineer •logistics engineer •materials engineer •mechanical engineer •mechatronics engineer •molecular bionics engineer •safety engineer •test engineer •transportation engineer •vehicle engineer •vehicle operating engineer •water management engineer •wood industry engineer

Source: Tarsoly, 2000; Berei, 1962; felvi.hu, 2022

1. Table: Mechanical engineering courses and specialisations in Hungary

Training place	Optional specializations
University of Technology and Economics of Budapest, Faculty of Mechanical Engineering	material technology, building engineering, process technology, mechanical engineering development machine manufacturing technology, machine design, a mathematical engineer
University of Debrecen, Faculty of Technology	materials technology, building engineering, machine design, vehicle industry process design, operator-maintainer
University of Dunaújváros	maintenance; mechatronics
ELTE Faculty of Informatics (Szombathely)	not defined
Hungarian University of Agriculture and Life Sciences (MATE), (Kaposvár, Gödöllő)	building engineer, motor vehicle technology; machine manufacturer; IT Engineer
University of Miskolc, Faculty of Mechanical Engineering, and Informatics (Miskolc, Sátoraljaújhely)	materials technology; machine manufacturing technology; machine designer; engineering modelling; quality assurance; machine tool and target machine designer; chemical engineering
Neumann János University GAMF Faculty of Technology and Informatics (Kecskemét)	materials technology and quality; weapons designer and manufacturer; production IT; mechatronic; plastic processor
University of Nyíregyháza	mechanical engineering technology; vehicle mechanic
Óbuda University Alba Regia Technical Faculty, Bánki Donát Faculty of Mechanical and Safety Engineering	process technology, CAD-CAM-CNC; weapon and ammunition technical; machine design; combat vehicle technical; vehicle technology; aeronautical
Pannon University, Faculty of Engineering (Veszprém, Zalaegerszeg)	production design; mechatronics; silicate industry machinist; technical logistics
The University of Pécs, Faculty of Engineering and Informatics,	building engineer; machine structure and process designer
István Széchenyi University, Faculty of Mechanical Engineering, Information Technology and Electrical Engineering (Győr)	mechanical engineering technology; automotive technology; vehicle manufacturing
Faculty of Engineering, University of Szeged,	process engineering; mechanical maintenance

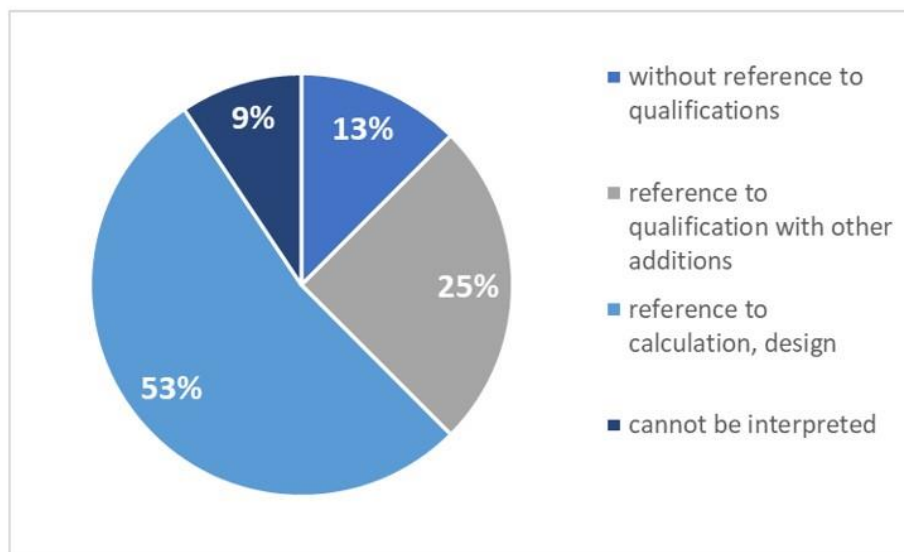
Source: *felvi.hu*, 2022

Engineering students' perceptions of engineering and mechanical engineering

We examined mechanical engineering students' awareness of the definition of the profession they are studying and their knowledge of their labor market opportunities. Interesting results could likely be obtained if the questionnaire were completed by students from more universities offering mechanical engineering courses, but even this small sample could provide important support for the main objective of our research. The questions were asked to mechanical engineering students at the Alba Regia Technical Faculty of Óbuda University, including students from all three years. The students were asked to complete an associative questionnaire consisting of 4 questions. 32 mechanical engineering students (19 third-year, 5 second-year, and 8 first-year) completed the short questionnaire, which was evaluated by pairing questions 1 and 2 with keywords and questions 3 and 4 with simple numerical scores. Before completing the questionnaire, students were informed that there were no positive or negative consequences. The questionnaire was designed to establish a general level of knowledge.

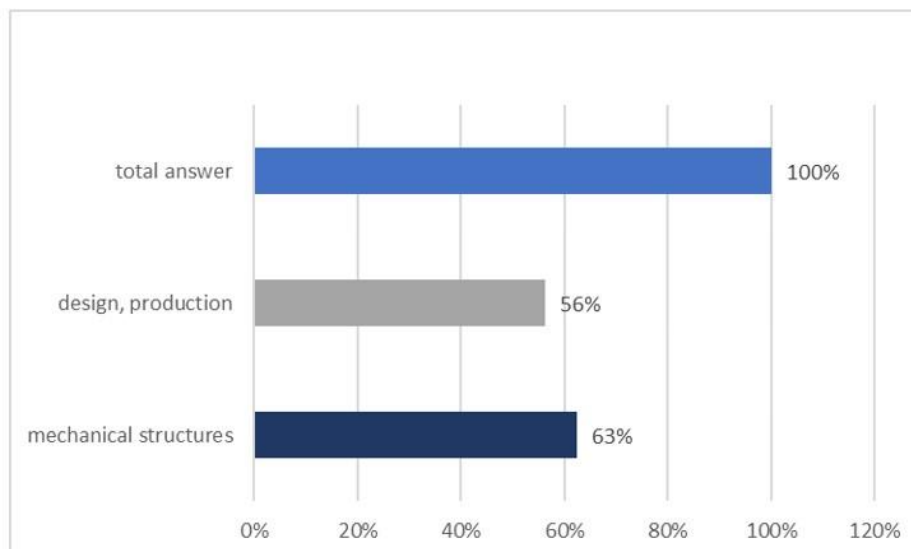
1. The concept of an engineer: in this question, we asked students to define the term engineer in their own words. The keyword used in the assessment was the reference to a higher education qualification. The results are presented in Figure 3.
2. The concept of mechanical engineer: in this question we asked the respondents to define the term mechanical engineer. Keywords used in this question were mechanical structures, design, operation, and maintenance. The results are presented in Figure 4.
3. Engineer categories: students were asked to list the known categories of engineers. The results are presented in Figure 5.
4. Mechanical engineering jobs: the fourth question was to list the mechanical engineering jobs they know. Results are presented in Figure 6.

3. Figure: The concept of an engineer



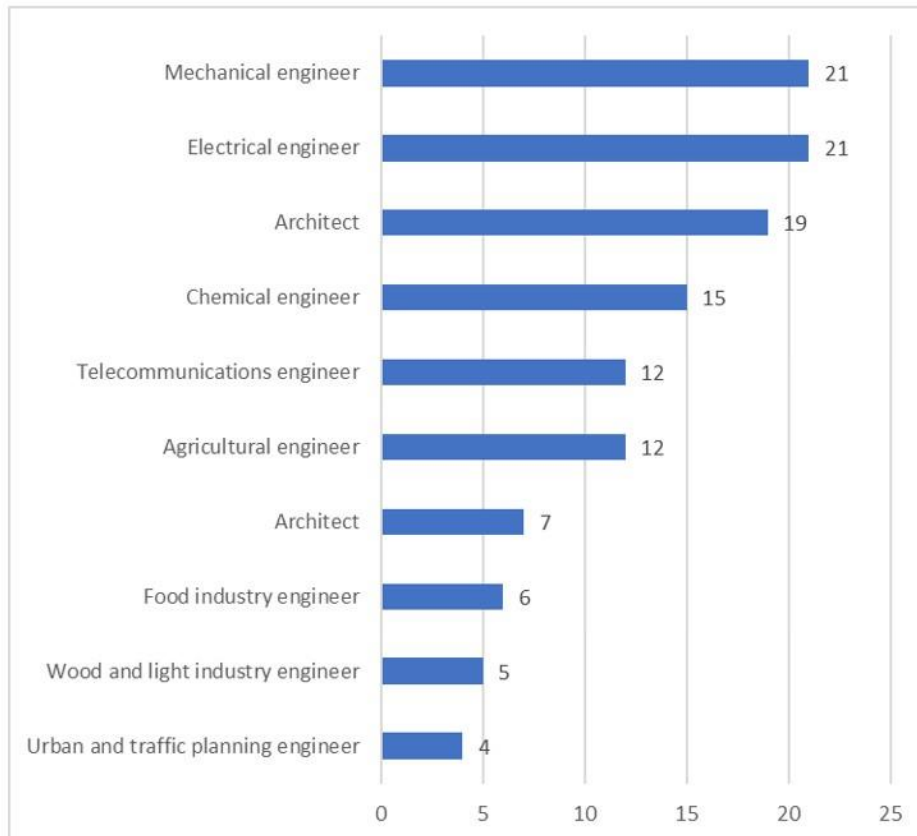
From the pie chart in Figure 3 most respondents do not associate the general concept of an engineer with a high level of professional knowledge but consider calculation, measurement, and design to be the defining characteristics of an engineer. 53% of the respondents clearly referred only and exclusively to calculation and design. 25% of the students, in addition to the reference to education, also consider calculation, design, and dimensions as important defining elements of an engineer in the other complement.

4. Figure: The concept of a mechanical engineer



When defining the activity of a mechanical engineer, we got slightly more precise and complex answers. Mechanical structures were mentioned a lot (63%), and design and manufacturing (56%) were also mentioned a lot. However, the full vertical was missing, with certain areas such as maintenance and operation not mentioned at all.

5. Figure: 10 most frequently mentioned engineer categories

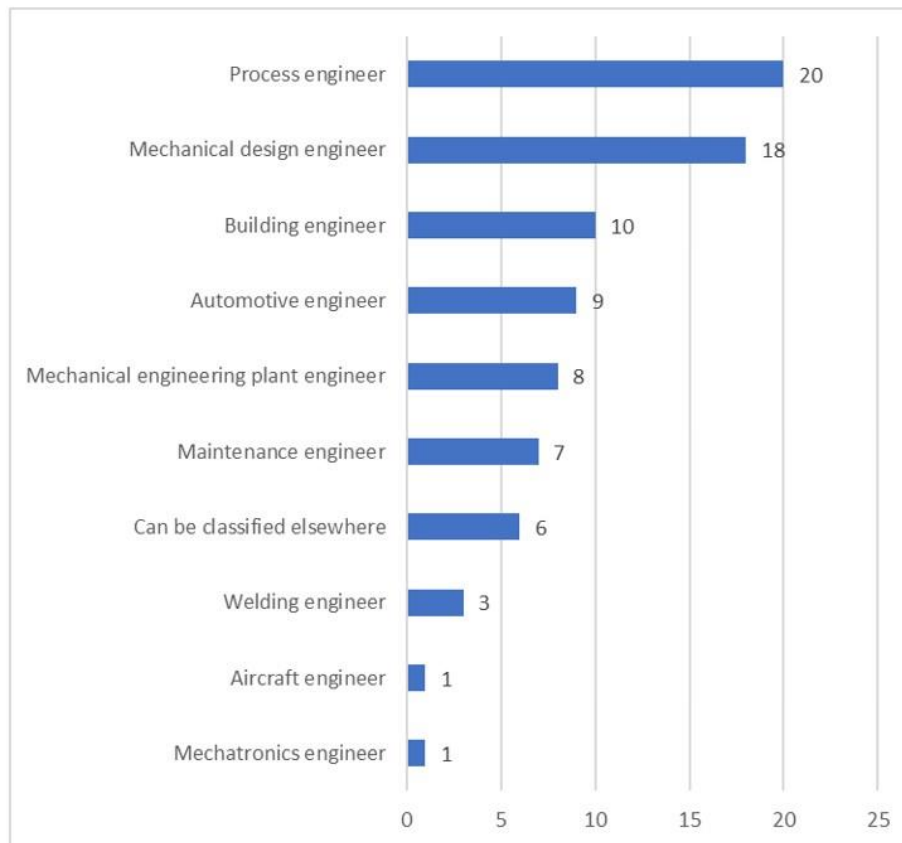


The answers give us several conclusions. One is that there are more familiar categories of engineers for the university students surveyed, and there are less familiar ones. On the other hand, some refer to a similar field of activity, such as architecture and civil engineering, but the differences between them are less understood because they are not involved in this topic.

It can also be seen from the responses that students think in terms of non-engineering categories, i.e., qualifications and the jobs that can be assigned to them. This is indicated by the large number of responses that do not relate to a specific engineering qualification, which are job-related activities.

The number of engineering professions that can be studied is increasing year on year, as can be seen in Figure 1. The expansion of the professional field in parallel with technical progress is not well known and followed by the population, teachers, parents, and students who are not directly involved in that specific field.

6. Figure: 10 most frequently mentioned mechanical engineer categories



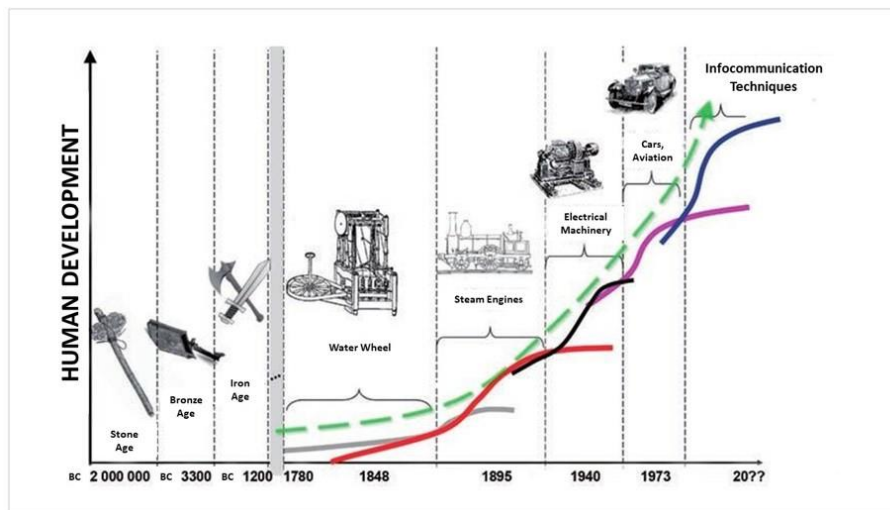
Out of the 45 jobs for mechanical engineers listed in the Hungarian Standard Classification of Occupations, six jobs were included in the evaluable number of responses. This is likely to be due to the specific professional interests, the limited experience in the field, and the knowledge of a more restricted professional environment.

The labor market in the 21st century is more diverse, complex, and specialised in engineering fields, including mechanical engineering. At the same time, there is a convergence of engineering disciplines.

Changes to the content of mechanical engineering training

Behind change, there is always a reason that triggers and inspires it. In the engineering field, we are studying, this trigger is clearly the technical progress and scientific advances of the 3rd and 4th industrial revolutions. New scientific discoveries and new technical solutions have made it necessary to keep changing and expanding the concept and content of the engineering or mechanical engineering curriculum. Although Gábor Szász's 1994 study, written in the transitional period of the change of regime in Hungary, is not necessarily relevant today, it does illustrate the pace of development in the technical sciences and the expansion of knowledge in the various fields, which is still entirely relevant today, if we consider the fields of CNC, robotics, or new materials technology as a continuation of the diagram (Figure 7.). The figure also shows that, although some knowledge has lost its relevance over time at the level of use, the knowledge required of mechanical engineers is growing exponentially. In addition to the increase in knowledge, there is also a broadening of the knowledge base, in addition to the traditional knowledge of mechanical structures, it is now expected to know how electrical machines work, or to know and use various information technology hardware and software.

7. Figure The pace and knowledge content of technical progress



Source: Gábor Szász, 1994

During our investigation, the question arose: how can the system of training mechanical engineers follow this increase in knowledge, and how can the system incorporate it into itself?

To answer this question, a comparative study of the subject matter of mechanical engineering training over 4 periods was carried out based on available data from Miskolc University and Óbuda University.

The periods studied:

- 1970/71 The period following the end of solid domestic industrialisation
- 1988/89 The period of the completion of the socialist planned economy
- 2004/2006 The period following the accession to the European Union. Period of European legal harmonisation
- 2014/15 The period of the last major educational reform

The history of mechanical engineering at Óbuda University dates to 1879, when the Budapest State VET School was founded.

The institution functioned as a college in the first and second periods under review. According to the decree-law of 1969 conferring the status of a college, the college's mission was to train technicians capable of managing the technical preparation of mechanical engineering production, the design of production processes, the design and manufacture of simple production equipment, and the operation of manufacturing plants and their machinery.

The third period under consideration is the period of the Budapest Technical College, which was created in 2000 by integrating three technical colleges, including the Bánki Donát Technical College. The institution ensures that engineers are equipped with a wide range of professional knowledge and up-to-date skills by launching courses tailored to the needs of the times and by constantly updating its curricula.

In the fourth period under review, it has been part of the University of Óbuda as the Bánki Donát Faculty of Mechanical and Safety Engineering since 2010.

This organisational change also follows the development of the level and content of engineering education.

The other institution under study, the University of Miskolc, is the ancestor of the Mining and Metallurgy Institute founded in Selmecebánya in 1735 by Charles III, the first in the world to teach higher mining and metallurgy.

In 1949, the Technical University of Heavy Industry was established in Miskolc, consisting of the Faculty of Mining and Coal Engineering, relocated from Sopron, and the newly founded Faculty of Mechanical Engineering.

From the 1980s onwards, the profile of the university, which had previously been exclusively devoted to heavy industry, was broadened, with the introduction of legal training in 1981 and economics in 1987. Accordingly, the old name, which referred to the institution's heavy industrial character, was changed, and in 1990 it was renamed the University of Miskolc. However, the renewed technical faculties continued to operate under the Faculty of Geotechnical Engineering, the Faculty of Materials Engineering, the Faculty of Mechanical Engineering, and the Faculty of Informatics.

A review of this institution's organisational and training changes shows a steady expansion in the engineering and other courses.

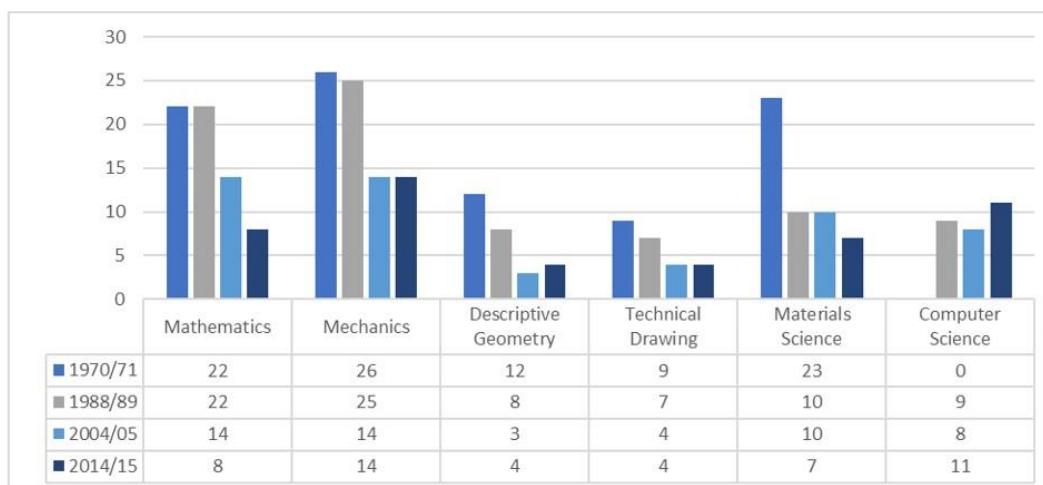
As the institutional structure was constantly changing, so was the mechanical engineering curriculum, evolving to meet the challenges of the time. We will now review this, specifically the changes in the mechanical engineering curricula over the 4 priority periods.

We have examined the evolution of the number of theoretical and practical hours per semester, the distribution of the professional foundation and other complementary subjects, and the change in the total number of hours of the foundation subjects.

Since the total number of hours in traditional mechanical engineering and in the BSc courses of today are different, the total time spent in a semester and its evolution were compared to establish trends for comparability.

Looking at the curricula for mechanical engineering in each period, there has been a radical reduction in the number of hours in the basic technical subjects (Figure 8.) at the University of Miskolc. Computer science was introduced as a new increased in each of the newer curricula, in contrast to the other foundation subjects. However, the ratio of theory to practice has increased in favour of theory, which may be due to the increase in the number of students in the courses, the limits of practical capacity, and the cost of the courses.

8. Figure: The number of hours of the basic subjects of the mechanical engineering course at the University of Miskolc



After studying the mechanical engineering curricula of the Óbuda University in the examined periods, it can be said that the number of Mathematics and basic Mechanics classes decreased in the topics of the 2000s, and the rigors of the basic subjects ceased.

The themes of the 1980s already included IT. In the 2000s, Descriptive Geometry is no longer included and the number of hours of Technical Drawing gradually decreases, and Mechanical Drawing and CAD

design are included in the curriculum. The latest curricula already include subjects and methods that develop soft skills that were not included before. In 2017, the Project subject was introduced, where students have to solve a technical problem as a group of 3-5, and then present it. The goal is to develop problem-solving skills, teamwork, and presentation skills.

Summary

The student questionnaires show that students have general and inaccurate perceptions about their studied profession and the labor market opportunities related to their studies. Therefore, it would be essential to eliminate these misconceptions in the first semester, and the support classes provide an excellent opportunity to do so. Our students must accurately understand their chosen profession and the opportunities it offers. This is why Óbuda University considers dual training so crucial because getting to know the labor market from the beginning provides much greater insight into the practical application and role of the profession.

The technical progress will continue, but faster development is expected. The body of knowledge in engineering will continue to grow faster and more rapidly, and this knowledge must be passed on to students during their training so that they can meet the demands of the labor market even as recent graduates. It is also confident that the inertia of the training system will leave much content in education that is considered "obsolete" or has lost its practical relevance due to technological change. Considering all this, three alternatives to address the problem are offered.

Firstly, to increase the training time, i.e., the time needed to transfer the increased knowledge. This option is not possible under the current legal framework. The duration of the BSc course is 7 semesters. All content should be condensed into this. Labor market expectations also do not allow this extra time, and nowadays, due to the significant shortage of engineers, engineers are already leaving the university before completion, many people are so absorbed in the world of work before they graduate that they often do not even finish the last one or two semesters, or they do not even finish their thesis and final exams.

The second option is to increase the training time by specialisation. In this case, the 7 semesters available would be used to teach the current core subjects, at the end of which the student would obtain a general engineering degree. This would be followed by specialisation and teaching of the content of the specialisation, as in the current MSc course.

The third option is the choice of content. For example, the selection factors could include the utility value of the knowledge, or the overlap, which is the knowledge that can be acquired while learning modern techniques and technologies which does not necessarily require separate hourly training. Using the results and findings of this study, the third alternative will be explored in our future research.

References

- Azmi, A. N., Kamin, Y., Noordin, M. K., & Nasir, A. N. M. (2018). Towards industrial revolution 4.0: employers' expectations on fresh engineering graduates. *International Journal of Engineering & Technology*, 7(4.28), 267-272.
- Berei, A. (1962). *New Hungarian Lexicon* (Új Magyar Lexikon). Budapest, Akadémia Kiadó.
- Dankó, C.T. (2019). *Important competencies in the engineering and IT world*. URL: <https://gramontinternational.com/hu/fontos-kompetenciak-a-mernok-es-it-vilagban/> (Last download: 06/19/2022)
- Fernandez-Miranda, S., Marcos, M., Peralta, M., Aguayo, F. (2017). The challenge of integrating industry 4.0 in the degree of mechanical engineering. *Procedia Manufacturing*, 13:1229–1236.
- Fomunyan, K. G. (2019). Education and the fourth industrial revolution: Challenges and possibilities for engineering education. *International Journal of Mechanical Engineering and Technology* (IJMET), 10(8), 271-284.

- Kulacki, F.A. (1996). The Education of Mechanical Engineers for the 21st Century, JSME international journal. Ser. A, *Mechanics and material engineering*, Volume 39, Issue 4, Pages 467-478.
- Lee, M., Yun, J. J., Pyka, A., Won, D., Kodama, F., Schiuma, G., & Zhao, X. (2018). How to respond to the fourth industrial revolution, or the second information technology revolution? Dynamic new combinations between technology, market, and society through open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 4(3), 21.
- Mourtzis, D. (2020). Simulation in the design and operation of manufacturing systems: state of the art and new trends. *International Journal of Production Research*, 58(7), 1927-1949.
- Neumann, C., Stroud, K. M., Bailey, S., Allison, K., & Everts, S. S. (2021). 21st-Century Competencies in Higher Education: A Practitioner's Guide. In *Handbook of Research on Barriers for Teaching 21st-Century Competencies and the Impact of Digitalization* (pp. 293-315). IGI Global.
- Penprase, B. E. (2018). The fourth industrial revolution and higher education. In *Higher education in the era of the fourth industrial revolution*, 10, 978-981.
- Révai (1911–1935). *Révai Great Lexicon*, Budapest, Révai Brothers Literary Institute Joint Stock Company.
- Szász, G. (1994). *The technical level of socialist-oriented countries 1945–1990*. The F4632. s. A study was carried out in the framework of OTKA.
- Tarsoly, I. (ed.) (1996-2000). *Hungary in the XX. century, volume IV*. Szekszárd, Babits Publishing House.
- *Technical University of Heavy Industry. Yearbook 1970/71*, Miskolc.
- *Technical University of Heavy Industry. Yearbook 1988/89*, Miskolc.
- *Technical University of Heavy Industry. Yearbook 2004/06*, Miskolc.
- *Technical University of Heavy Industry. Yearbook 2014/15*, Miskolc.
- The Boston Consulting Group (2015). *Industry 4.0: The future of productivity and growth in manufacturing industries*.
- Zhang, C., & Yang, J. (2020). *A history of mechanical engineering*. Springer.

Andrea LUKÁCS

Knowledge Management as a powerful tool to increase competitiveness. Exploring interrelations of knowledge management and adult learning in the context of the learning organization

Introduction

The knowledge economy is based on the learning organisation (Nonaka & Takeuchi, 1995), where the willingness to learn is the source of competitiveness, and maximum profit is not necessarily measured in money but in the organisation's knowledge. In such a context, thinking is the responsibility of each individual, which is realised at all levels of implementation and decision-making (Senge, 1994). When an organisation is transforming into a learning organisation, a key element of the process is to set up an effective and value-creating knowledge management system.

As Fayol (2002) puts it, management is a well-defined process that involves anticipating, planning, organising, executing, coordinating and controlling the activities of others. According to Davenport and Prusak (2000), all this is related to knowledge, which has three distinct levels: data, information, and knowledge, where knowledge alone has contextualised, complex content generated in the human mind. According to Nonaka and Takeuchi (1995), knowledge develops through experience, and according to Siemens (2005), it is not necessarily acquired but is always present in the network. Knowledge management is thus a process-oriented activity that involves collecting, evaluating, cataloguing, storing, and reusing knowledge from different sources, providing access to knowledge and removing obsolete knowledge (Gamble & Blackwell, 2001).

Davenport and Prusak (2000) also refer to knowledge management systems which have three main goals:

1. To make knowledge and its role visible to the whole organisation
2. To create a knowledge-intensive culture within the organisation
3. To organise an infrastructure around processes that creates links between people

Since long-term sustainable competitive advantage depends on the firm's resources and capabilities, it is up to managers to seek out rare and valuable resources that are difficult to replace and replicate and which can be exploited and harmonised with external factors through the system (Barney, 1995). Knowledge is a primary resource, especially in knowledge management-oriented firms. Knowledge sharing is essential for organisations; it is the basis of their effective functioning, it is probably already embedded in the strategy of many, but everywhere they are looking for ways and means to develop, share, 'catalogue' and reuse the knowledge that is inherent in the company's workforce (Israilidis, Siachou, Cooke and Lock, 2015). It is how unique, hard-to-replicate, valuable, scarce resources can be created. Dynamic market environments, high customer expectations, and successive rapid (often technological) changes are challenges to which the diffusion of a knowledge management approach offers effective responses, such as better results with less labour, reduced infrastructure costs, more satisfied customers, increased efficiency, and innovation.

Empirical studies in the 1990s and 2000s (Nonaka and Takeuchi, 2006; Sandhawalia and Dalcher, 2011; Wang et al., 2014; Wu and Lin, 2013) have sought answers to questions such as whether knowledge management systems have a strategic impact on firms, whether they are related to financial performance, what is the relationship between the system operated and the competitive strategies chosen, how they contribute to innovation and the creation of new knowledge, what are the factors necessary for operating a knowledge management system or what are the barriers to its implementation, and what are the keys to a successful knowledge management system. Nevertheless, Hungarian researchers have only discussed these issues to a limited extent (Stéber & Kereszty, 2015; Tóbiás, 2016; Klimkó, 2001) by focusing on organisational learning; therefore, this study seeks to

answer similar questions and generates new findings in the Hungarian context. The research uses qualitative and quantitative methods; however, in this paper, we share findings from the data collected with the Dimensions of Learning Organisation (DLOQ) questionnaire (Watkins & Marsick, 1993) to determine the degree to which organisations operate as learning organisations. The research questions explored the initiatives at 3 Hungarian organisations, particularly the systems in use to manage knowledge, the processes these systems allow, the role of technology and the opportunities offered by different networks to support becoming a learning organisation. The survey was sent out to nearly 800 contacts at 150 small, medium and large enterprises; the total number of respondents is 265. The sample is not representative; respondents from small companies are overrepresented with 30%. Most respondents work in the IT sector (25%), and other sectors are represented with a minor (under 5%) within the sample.

Knowledge management models

All models include processes related to knowledge creation, flow, storage, and reuse. However, the focus is on different elements and approaches from model to models, such as sequencing, synergies and networks, and the impact of the external environment on knowledge creation, strategic thinking, decision-making or even problem-solving processes. All of these are closely linked to the organisational culture and strategy, so paying attention to their fit when implementing a model-based knowledge management system is essential.

According to modern approaches, the primary driving force of an organisation is managed, which includes planning, for example, **strategy setting**. A strategy is nothing more than a vision, a plan that sets out the long-term objectives, defines the resources needed to achieve the objective and outlines how the objective is to be achieved. If we consider knowledge management as a management activity, according to Fayol (2002), then this activity implies strategy. Although three of the models only deal in detail with the topic of strategy formation, Nonaka and Takeuchi's (1995) model differs radically in its conception of strategy from the models of Watkins and Marsick (1995) and Bukowitz and Williams (1999). However, it is questionable to what extent the strategy imagined in the culture of hypertext organisations, which is based on Eastern philosophy and describes the vision of the future in metaphors, can be implemented in organisations that follow a Western philosophy sharply divided by Descartes' doctrines.

Nevertheless, essential and even implementable elements of the knowledge management strategy in their model are the rotation of employees between functions, unrestricted access to information about the firm (regardless of position) and the competitive bidding of development projects within the organisation. In terms of strategy, Watkins and Marsick (1995) emphasise the building of organisational culture, the creation of a shared vision, the importance of strategic leadership and the role of managers (role model, leadership) in line with the organisational learning goals. On the other hand, the model of Bukowitz and Williams (1999) essentially focuses on strategy and thus sees knowledge management as a planned, well-structured, analysis-based activity with responsibility within the organisation, including planning and implementation, and learning and contribution phases as tactical steps. **From** the third analysis perspective, organisational culture can be a facilitator or a barrier to knowledge management processes; hence, these models consider it a key factor.

The models discuss **knowledge** from a wide variety of perspectives. Watkins and Marsick (1995) emphasise the conceptual differences between organisational learning and learning organisation and the importance of mutual learning and dialogue, which can contribute to creating ever-renewing, collaborative knowledge. The SECI model (Nonaka & Takeuchi, 1995) stresses the importance of subjectivity and places the individual and the transfer of knowledge between individuals at the centre of knowledge creation and management (cf. Nonaka & Peltokorpi, 2006). Wiig (1993) focuses on knowledge systematisation, while Von Krogh, Roos and Slocum (1994) draw a dividing line between individual and community knowledge. Social knowledge is seen as a representation of networks and is considered the most important element in knowledge management. Bukowitz and Williams' (1999) model accounts for the obsolescence of knowledge and draws attention to the importance of managing such knowledge.

The level of **technology** is only sometimes mentioned as a critical factor, but it is touched upon in the storage of information. Wiig's (1993) framework addresses using tools in knowledge sharing. He mentions the need to create a "who knows what" repository, covering the references and libraries created in the background to make the knowledge as accessible as possible to all. Bukowitz and Williams (1999) distinguish between information management and knowledge management, the differentiating factor being that to access tacit knowledge, namely, it is necessary to link not only to content through technology but also to individuals or groups who know something. Von Krogh, Roos and Slocum (1994) emphasise the network of communities, which is inevitable today without an account of virtual communities. Given Nonaka & Takeuchi's (1995) understanding of tacit knowledge, the knowledge of the subject and the community, that knowledge is created, transmitted and reborn through individual and community interactions, it is perhaps not surprising that technology does not play a role in the model. Although Watkins and Marsick (1995) emphasised the importance of the characteristics of learning organisations, the **organisational culture** as an influencing factor, the fourth of the seven dimensions states that systems are set up to capture and share knowledge, which in their view can be high or low-tech systems, the point being that employees have access to the information stored there and that the organisation takes care of its maintenance.

Knowledge management in the corporate context

According to North, Reinhardt and Schmidt (2009), the euphoria of knowledge management studies in the 1990s had been replaced by reality, but primarily by pessimism: the knowledge management approach to optimise operations had no strategic effect on companies, as knowledge management was seen just as a method which had no particular relationship to financial performance; and it was found that the main barrier to implementation had been related to soft factors such as lack of trust in senior management, time management problems and the use of inappropriate tools (North et al., 2003).

Nonaka and Takeuchi (1995) found that the creation of new knowledge depends heavily on how organisations capture tacit knowledge and how it is made visible and used in the organisation. Furthermore, their results show that personal commitment is an essential part of the process and that employees identify with the company's vision and mission and understand its operations and goals to be achieved. Hence, the role and responsibility of middle managers in knowledge management were emphasised, as they bring together the ideas of senior management and the experiences of employees while constantly questioning daily routines, using metaphors and concepts to voice the company's vision, intersections of horizontal and vertical information, i.e., they form a bridge between chaotic reality and vision (Nonaka, 1995).

Sandhawalia and Dalcher (2014) examined how the flow of knowledge contributes to the creation, integration, and collaboration in processes through case studies. Their study demonstrated that collaboration supports knowledge flow, discovered interconnections between knowledge flow and functional areas, and confirmed that the existing knowledge of team members is incorporated into new knowledge. It is most often a necessary factor in problem-solving and development activities. Learning happens when mistakes are encountered, analysed, and corrected. New knowledge was created by analysing causal relationships and updating error lists, which were then incorporated into the existing knowledge base. Functional areas integrated experience and feedback, leading to further dynamic knowledge building, and this knowledge became an appropriate basis for decision-making processes (Sandhawalia & Dalcher, 2014).

Similar results were revealed by Wu and Lin (2013), who demonstrated that firms create different competitiveness strategies that are tied to different knowledge management strategies. The primary strategy of the companies they examined was to look at the organisation as an innovator; in so doing, new internal knowledge was constantly exploited. Innovation was the employees' goal, so they were ready to share important information. Organisations with a relatively stable product or service base follow a competitive analytical strategy, building on internal and external knowledge and acquiring new skills through continuous improvement. Firms with a defensive strategy operated in relatively well-defined markets with standard products, following a knowledge management tracking/copying strategy, where employees extensively studied and searched for knowledge from external sources,

codified it, stored it in a well-documented form, and made it available to everyone. The study highlighted that if senior management did not define the right competitive strategy well enough, employees would not be able to find the most helpful knowledge available at the company. Hence, knowledge management did not support their market competitive strategy. Therefore, knowledge management strategy comes first, and only the technical background/infrastructure to support knowledge management practices, including tacit and explicit knowledge creation, conversion, and storage (Wu & Lin, 2013).

Role of ICT in knowledge management systems

ICT technologies' continuous development has also changed how information is obtained, stored, organised, and shared. In 2007, Kane and Alavi (2007) examined the role of ICT in organisational learning. They found that knowledge repository-type systems are more suitable for developing explicit knowledge, while communication technologies are more suitable for developing tacit knowledge. Van den Hoff (2004) believed that the use of ICT systems has only an indirect effect on the knowledge transfer process. It influences the commitment to the organisation, and its role is to break down communication barriers. However, according to Barret (2004), ICT provides a basic infrastructure and environment to support learning but needs to be to encourage effective learning. If the organisational climate is ideal, technology can contribute to transmission by providing the infrastructure for the knowledge community. Information technology undoubtedly provides a suitable platform for learning, processing, storing, and retrieving information, becoming knowledge in specific contexts. In this way, information technology facilitates knowledge management, accelerating and facilitating organisational learning. At the same time, organisational learning plays a crucial role in the implementation of information technology systems, especially for enterprise resource planning (ERP) and customer relationship management (CRM), mainly by helping the organisation to make effective use of technology (Malik et al., 2018).

In the corporate sector, IT systems are generally classified into three categories: knowledge management, communication and collaboration systems, and decision support systems (Argote, 2017). Knowledge management systems collect, store, share, and make available knowledge to increase productivity (Argote, 2017). An organisation learns faster and performs better if it has a piece of information technology-supported organisational memory (Argote, 2015). Communication and collaboration tools facilitate collaboration among individuals and groups and facilitate the sharing, capture, and dissemination of knowledge. Such as web 2.0 technologies include social web, blog and forum applications and systems (Aboelmaged 2018, Qi & Chau 2018). Finally, decision support systems support faster learning and quick adaptation to change. These include ERM, CRM and extensive data analytics systems. Systems capable of analysing the vast amount of data that accumulates in organisations most often play a significant role in generating new knowledge. (Calvard, 2015; Rodriguez 2017).

The global COVID-19 epidemic has significantly impacted business worldwide, with McKinsey's 2020 report saying that one of the most affected areas was the transformation of work-based learning. Most in-person training has been postponed or cancelled by companies in the Americas, Asia, and Europe. At the same time, organisations could not afford to develop the skills of their employees, so to continue to deliver value-creating learning programs, almost every organisation has relocated learning activities to virtual space, creating new training programs and platforms. In addition to tactical steps, new strategic goals have been set, such as building alternative digital learning strategies (McKinsey, 2020). The design and development of strategies brought to life strong collaboration between the various functional teams, such as HR, IT and platform technology experts, management, marketing and finance, and training delivery companies. Priorities had to be set as to which training is necessary and possible to move to a digital platform; hence, the optimal training portfolio had to be re-evaluated. The proportions of centralised and decentralised programs have also changed, as in the pre-virus period, many forms of training required a global, personal presence. Nevertheless, since it became increasingly difficult to manage these, organisations were forced to hold smaller virtual events to communicate knowledge to their employees effectively.

Finally, the epidemic has accelerated digital learning, which in this situation has become necessary to protect employees from falling ill, facilitating the promotion of learning on virtual platforms. Of course, this has made it necessary to improve the quality of digital programs and for leaders to find new ways to motivate individuals to learn. It was a successful tactic for senior executives to participate in online training and for social media elements to be incorporated into the learning process. Group learning, collaboration, and interactivity played a more significant role. Digital content developers had to re-frame the "learning problem", rethink their experiences in the process, set priorities for learning goals, and select learning content that matched the previous ones (McKinsey, 2020).

The Learning Organizations Questionnaire (DLOQ) (Marsick & Watkins, 2003)

The Dimensions of Learning Organizations Questionnaire (DLOQ) (Marsick & Watkins, 2003) enables a zero diagnostic step of system implementation as it provides organisations with data on their current position in becoming learning organisation. According to the Learning Organisation Model (Watkins & Marsick, 1993), the fundamental prerequisite for implementing knowledge management is that the organisation adopts the learning organisation model and identifies with the concept. This model is based on the understanding that learning is not a linear process - even though most adult learning processes start from the instructor structuring the learning experience in some way –but it is instead a process where members of the learning organisation, e.g., employees, (also) learn from each other at work through dialogue. In the following, the model's dimensions and, thus, the questionnaire will be explained based on Watkins and Marsick (1993).

The first dimension of the model is "*Create continuous learning opportunities*" (CL), which links learning to work so that employees can learn on the job; they have the opportunity for continuous development and participation in training. The second dimension describes the process of "*Promoting inquiry and dialogues*" (DL), whereby individuals can express their views and listen to the views of others, ask questions, give feedback, and gather experiences. The third process focuses on "*Encourage collaboration and team learning*" (TL), i.e., work is designed to be done in groups of people with different mindsets, where learning and work can take place together. Collaboration between members is valued and rewarded. The fourth action in the process is to "*Establish systems to capture and share learning*" (ES), which means that both high- and low-tech systems can share knowledge and be integrated into work. These are accessed and maintained by the organisation. "*Empowering people towards a collective vision*" [EP] is the fifth process that characterises the model. We mean that employees are involved in creating and implementing a shared vision; responsibility and decision-making are shared to motivate employees to learn what they consider essential. The sixth dimension refers to "*Connect the organisation to its environment*" (SC), i.e., employees can see the impact of their work on the organisation as a whole to think systemically. Finally, the seventh process in the model ensures that learning is strategically embedded in the organisation, that is, "*Provide strategic leadership for learning*" [SL], i.e., learning is part of the leadership strategy, and leaders lead by example; most importantly, support individual and organisational learning and professional development (Marsick & Watkins, 2003.).

The DLOQ questionnaire is a diagnostic tool which seeks to identify gaps, define intervention points, and define related indicators (Marsick & Watkins, 2003). It is used in empirical research, measuring significant shifts in organisational culture, systems and structures that also affect individual learning. More than 70 studies used it. Furthermore, it has been translated into 14 languages. By 2010, more than 200 companies had completed the questionnaire, which had been modified until the alpha coefficient on all scales was correct. The statistical bases are solid and reliable on all scales above the recommended level of 0.70. The validation studies of the DLOQ questionnaire (Marsick, 2013) have thus confirmed that the degree of 'learning culture' within an organisation is a good measure for human resource and organisational development research. For these reasons, this study employed it to inquire about learning in Hungarian organisations.

Research questions

Thus, this quantitative inquiry using the DLOQ questionnaire focused on the following questions:

- (1) What types of initiatives are detectable in these organisations?

- (2) How do these organisations operate knowledge management systems? If knowledge management systems are available, what are employees' experiences?
- (3) What is the role of networked devices, techniques, and applications in the knowledge management system?
- (4) How are connectivist learning systems, tools and knowledge management related, if at all, in these organisations?

Methods

The adapted version of the Watkins and Marsick DLOQ questionnaire (Watkins & Marsick, 2003) had been used in Hungarian organisations whose employees responded to the survey voluntarily. (N = 269).

DLOQ is a self-reported questionnaire, and the metrics are influenced by perception. Occasionally, only middle and senior executives can adequately answer performance questions during data collection and analysis. Further, it may also happen that current performance is based on the consequences of earlier activities, learning initiatives and outcomes that are not yet visible in the snapshot (if they are still at a very early stage), and, of course, the environment can change easily and quickly. (Marsick & Watkins, 2003)

The DLOQ questionnaire was available in 14 languages and adapted to different sectors (for-profit and non-profit organisations, public sector institutions, health, and education institutions), with a total of 7954 respondents from 5 countries (Horváth, 2019). These results confirmed the reliability and consistency of the questionnaire based on Cronbach's alpha indicators.

The measure focuses on on-the-job learning and supportive organisational culture and interprets learning at the level of the individual, groups, and the organisation along its seven dimensions (Horváth, 2019). Two independent experts translated the English version into Hungarian, and then a third expert translated the Hungarian version into English (Horváth, 2019). Preceding this larger-scale data collection, we piloted the questionnaire with a sample of 37 people. The results of the pilot were checked for reliability (Table 1).

Table 1. Cronbach's alfa test of the pilot survey. Source: own editing based on SPSS results

Dimensions	Cronbach's alfa
"Create continuous learning opportunities" (CL) (7 item)	0,806
"Promote inquiry and dialogues" (DL) (6 item)	0,915
"Encourage collaboration and team learning" (TL) (6 item)	0,848
"Establish systems to capture and share learning" (ES) (6 item)	0,857
"Empowering people towards a collective vision" [EP] (6 item)	0,915
"Connect the organisation to its environment" (SC) (6 item)	0,889
"Provide strategic leadership for learning" [SL] (6 item)	0,886

Analyses

The one-way analysis of variance was used to compare groups or conditions. The normal distribution was checked with the Komogorov-Smirnov test. The sample did not show a normal distribution; however, as the sample was insignificant, we were permissive in this respect. Statistical tests were performed with the condition that the confidence intervals and the significance values could be interpreted. Therefore, the violation of the normality condition does not significantly influence the validity of the conclusions (Vargha, 2007). We also used the Levene test and ANOVA (F-test) for further analyses if the standard deviation was homogeneous. In the case of heterogeneous scattering, the Welch-Brown test was used. The results are presented in proportion to the valid responses, excluding the distorting effect of non-responses.

Results

Descriptive statistics ranged from average to good results, with the weakest performing statements relating to sharing experiences, measuring training effectiveness, seeing problems as a learning opportunity, providing honest feedback, and listening to each other's opinions (Table 2). Respondents rated the support of leaders in implementing learning activities as the best. For the most part, respondents feel that their respective companies have increased the amount of IT investment.

The DLOQ test is a self-reported questionnaire with metrics influenced by perception. Although individuals can complete the questionnaire, often only middle and senior executives can answer questions about performance appropriately. The statements about the company's performance have yielded above-average results of 4, but the high standard deviations show differing views in this regard. Therefore, the results will likely be affected by the position of the respondents at the company, as those working in lower positions have no view of these areas. It is also shown by the high number of missing items that many still need to answer or choose *I cannot / do not answer* option.

Table 2. Evaluation of the company's performance – descriptive statistics

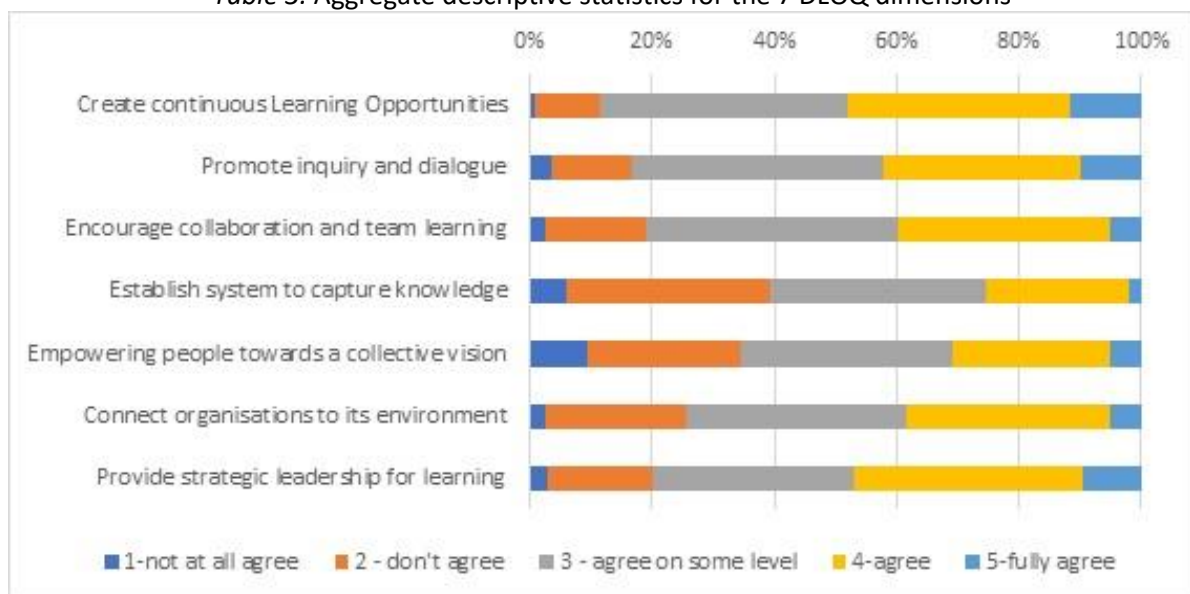
Evaluation of the company's performance	<i>n</i>	<i>M</i>	<i>SD</i>
At the company, customer satisfaction is higher than last year.			
Evaluable answers	200	4,2	2,3
Missing items	65		
The number of employee proposals implemented at the company is higher than in the previous year.			
Evaluable answers	200	4,2	2,31
Missing items	65		
The number of new products / services at the company increased compared to the previous year.			
Evaluable answers	200	4,1	2,29
Missing items	65		
The proportion of well-trained employees in the company's total workforce has increased compared to the previous year.			
Evaluable answers	200	4,1	2,3
Missing items	65		
The company's investment in technology and IT has increased compared to last year.			
Evaluable answers	200	4,4	2,3
Missing items	65		
The company has increased the number of employees who have acquired new skills (learned something and actively used it)			
Evaluable answers	200	4,3	2,39
Missing items	65		

Source: own editing based on SPSS results

Aggregate descriptive statistics for the 7 dimensions

The combined descriptive statistics for the different dimensions are shown in Table 3. About half of the respondents (N = 265) believed that their companies create opportunities for continuous learning and another 40 percent moderately agreed with this statement. Stimulating interest and dialogue and encouraging collaboration and teamwork show similar results. Far fewer agreed with the statement that their company has systems in place to capture knowledge, with over 50 percent disagreeing moderately or not at all. The dimensions related to the vision of the organization and its participation in shaping it, as well as its connection to the environment, also show weaker results, here the proportion of those who moderately or rather disagree is over 80 percent. The last dimension examined learning as part of a leadership strategy that yielded approximately similar results to the first three dimensions. Thus, based on the statistical results that describe the learning organization along seven dimensions, the examined organizations focus less on the vision, their systems and processes, and the environment around them.

Table 3. Aggregate descriptive statistics for the 7 DLOQ dimensions



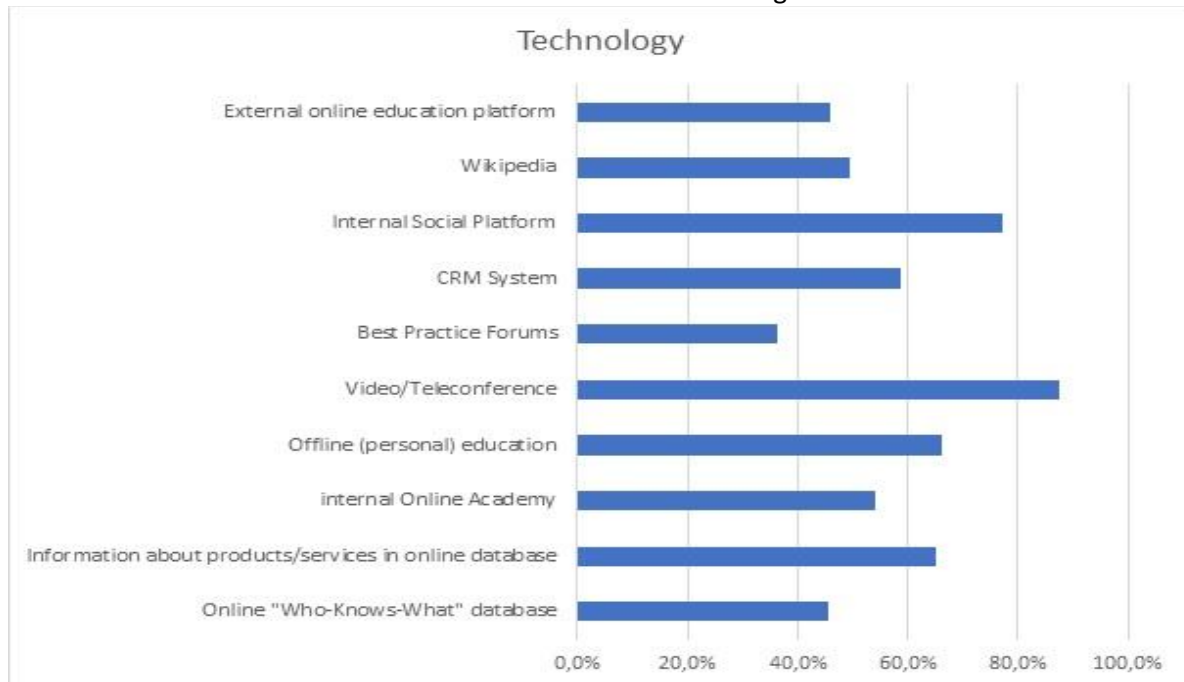
Source: own editing based on SPSS statistics results

Initiatives, knowledge management systems and experience in the light of technology

One of the research questions focused on existing initiatives and knowledge management systems, as well as experiences related to those. Based on the answers to the questionnaire about the technologies used (N=265), the most common tools organizations use are video or teleconferencing for collaboration. The availability of a knowledge repository was confirmed by less than half of the responses, while 2/3 of the organisations store information about their products and services in online databases. 54 percent of the respondents stated that their organisation has internal online education systems and in-service training systems, however, 61 percent of the respondents indicated that such trainings require in-person presence. 36 percent of respondents claimed that they use "Best Practices" forums to share information. The presence of a CRM system is also common, with nearly two-third of respondents indicating that such a system exists in their organisation. Online internal social platforms also seem to have become widespread, with 77 percent of respondents confirming their usage. External online learning interfaces are less widely used, with only 46 percent. The use of technology was not a problem for the respondents, as 74 percent of them believed that the software and applications were user-friendly.

In terms of technology use, the use of video or teleconferencing systems is the most common, while the presence of "Best Practice" forums is the least common. The distribution of technology use is shown in Table 4.

Table 4. Share of used technologies



Source: own editing based on SPSS descriptive statistics

Knowledge sharing and skill development

The research questions also inquired into processes of knowledge sharing and skills development as well as the use of tools in relation to the dimensions of the learning organization. The results show that there are correlations between the use of the following tools and the dimensions.

(1) Where respondents indicated the presence of the "Who-Knows-What" knowledge repository, they rated all dimensions ("Create cont. learning opportunities" $r=7,9$, $p=0,000$; "Promote inquiry and dialogues" $r=11,3$, $p=0,000$; "Encourage collaboration and team learning" $r=9,3$, $p=0,000$; "Establish systems to capture and share knowledge" $r=0,67$, $p=0,001$; "Empowering people towards a collective vision" $r=8,4$, $p=0,001$; "Connect the organisation to its environment" $r=14,1$, $p=0,000$; "Provide strategic leadership for learning", $r=12,4$, $p=0,000$) of the DLOQ questionnaire better than those who did not indicate the use of this tool (Table 5).

Table 5. Correlations between the tool "Who-Knows-What" repository and dimensions of the DLOQ questionnaire

		Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * The company has a kind of online "Who-Knows-What" repository	Between Groups (Combined)	7,923	1	7,923	12,926	,000
	Within Groups	96,848	158	,613		
	Total	104,771	159			
Promote inquiry and dialogues * The company has a kind of online "Who-Knows-What" repository	Between Groups (Combined)	11,373	1	11,373	16,444	,000
	Within Groups	109,273	158	,692		
	Total	120,646	159			
Encourage collaboration and team learning * The company has a kind of online "Who-Knows-What" repository	Between Groups (Combined)	9,352	1	9,352	16,037	,000
	Within Groups	92,137	158	,583		
	Total	101,489	159			
Establish systems to capture and share learning * The company has a kind of online "Who-Knows-What" repository	Between Groups (Combined)	8,432	1	8,432	12,441	,001
	Within Groups	106,409	157	,678		
	Total	114,841	158			
Empowering people towards a collective vision * The company has a kind of online "Who-Knows-What" repository	Between Groups (Combined)	9,111	1	9,111	10,590	,001
	Within Groups	135,934	158	,860		
	Total	145,044	159			
Connect the organisation to its environment * The company has a kind of online "Who-Knows-What" repository	Between Groups (Combined)	14,144	1	14,144	21,895	,000
	Within Groups	102,071	158	,646		
	Total	116,215	159			
Provide strategic leadership for learning * The company has a kind of online "Who-Knows-What" repository	Between Groups (Combined)	12,410	1	12,410	15,895	,000
	Within Groups	123,360	158	,781		
	Total	135,771	159			

Source: own editing based on SPSS ANOVA analytics results.

(2) Respondents who indicated that information about the products and services is stored in a database rated the following dimensions higher: "Promote inquiry and dialogue" ($r=4,2$, $p=0,022$), "Establish systems to capture and share knowledge" ($r=6,8$, $p=0,002$), "Empowering people towards a collective vision" ($r=5,8$, $p=0,010$), and "Provide strategic leadership for learning" ($r=5,9$, $p=0,008$). Thus, the systematic storage of information seems to have an impact on the assessment of the organisations' strategy and vision, as well as reflecting correlations with an organisational culture that is based on mutual interaction and dialogue. Nevertheless, as the descriptive statistics show, only a smaller percentage of respondents believed that the systematic storage of information was implemented in their organisation, hence, we may assume that lack of such an approach would have a negative effect on the assessment of the vision and corporate culture of the surveyed organizations (Table 6).

Table 6. Correlations between the tool “Products/services in online repository” and dimensions of the DLOQ questionnaire

			Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * Information about the company's products/services is stored in an online database	Between Groups	(Combined)	1,398	1	1,398	2,070	,152
	Within Groups		101,309	150	,675		
	Total		102,707	151			
Promote inquiry and dialogues * Information about the company's products/services is stored in an online database	Between Groups	(Combined)	4,168	1	4,168	5,360	,022
	Within Groups		116,635	150	,778		
	Total		120,802	151			
Encourage collaboration and team learning * Information about the company's products/services is stored in an online database	Between Groups	(Combined)	1,197	1	1,197	1,842	,177
	Within Groups		97,472	150	,650		
	Total		98,669	151			
Establish systems to capture and share learning * Information about the company's products/services is stored in an online database	Between Groups	(Combined)	6,795	1	6,795	10,001	,002
	Within Groups		101,924	150	,679		
	Total		108,719	151			
Empowering people toward a collective vision * Information about the company's products/services is stored in an online database	Between Groups	(Combined)	5,823	1	5,823	6,725	,010
	Within Groups		129,887	150	,866		
	Total		135,710	151			
Connect the organisation to its environment * Information about the company's products/services is stored in an online database	Between Groups	(Combined)	5,790	1	5,790	7,958	,005
	Within Groups		109,130	150	,728		
	Total		114,919	151			
Provide strategic leadership for learning * Information about the company's products/services is stored in an online database	Between Groups	(Combined)	5,963	1	5,963	7,236	,008
	Within Groups		123,626	150	,824		
	Total		129,589	151			

Source: own editing based on SPSS ANOVA analytics results.

(3) Interestingly, the availability of internal online education systems shows a non-significant relation with one single dimension, which is the “Creation of a continuous learning opportunity” ($r=1,9$, $p=0,069$). Whereas the course system that requires a personal educational presence shows a connection with every dimension, including the “Creation of a continuous learning opportunity” ($r=7,9$, $p=0,000$). This difference in relationships may indicate that employees in the organization have different views and perceptions of the potential impact of online and in-person learning opportunities (Table 7/a & Table 7/b).

Table 7/a. Correlations between the „available online training systems” and other DLOQ dimensions

		Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * The company has an internal online training system (Academy, online course, etc.)	Between Groups (Combined)	1,939	1	1,939	3,374	,069
	Within Groups	67,828	118	,575		
	Total	69,767	119			
Promote inquiry and dialogues * The company has an internal online training system (Academy, online course, etc.)	Between Groups (Combined)	3,200	1	3,200	5,605	,020
	Within Groups	67,366	118	,571		
	Total	70,566	119			
Encourage collaboration and team learning * The company has an internal online training system (Academy, online course, etc.)	Between Groups (Combined)	7,566	1	7,566	12,952	,000
	Within Groups	68,933	118	,584		
	Total	76,499	119			
Establish systems to capture and share learning * The company has an internal online training system (Academy, online course, etc.)	Between Groups (Combined)	17,650	1	17,650	33,825	,000
	Within Groups	61,572	118	,522		
	Total	79,221	119			
Empowering people toward a collective vision * The company has an internal online training system (Academy, online course, etc.)	Between Groups (Combined)	8,409	1	8,409	11,212	,001
	Within Groups	86,998	116	,750		
	Total	95,407	117			
Connect the organisation to its environment * The company has an internal online training system (Academy, online course, etc.)	Between Groups (Combined)	13,455	1	13,455	21,926	,000
	Within Groups	72,410	118	,614		
	Total	85,865	119			
Provide strategic leadership for learning * Information about the company's products/services is stored in an online database	Between Groups (Combined)	10,077	1	10,077	15,079	,000
	Within Groups	78,856	118	,668		
	Total	88,933	119			
index_fejloodes_q16_s * Van a cégnél belső, online oktatási rendszer (Akadémia, online tanfolyam, stb.)	Between Groups (Combined)	3,420	1	3,420	2,916	,091
	Within Groups	104,402	89	1,173		
	Total	107,822	90			

Source: own editing based on SPSS ANOVA analytics results.

Table 7/b. Correlations between the „available online training systems” and other DLOQ dimensions

		Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	7,924	1	7,924	14,896	,000
	Within Groups	61,708	116	,532		
	Total	69,632	117			
Promote inquiry and dialogues * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	3,657	1	3,657	6,119	,015
	Within Groups	69,329	116	,598		
	Total	72,986	117			
Encourage collaboration and team learning * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	7,041	1	7,041	12,225	,001
	Within Groups	66,810	116	,576		
	Total	73,851	117			
Establish systems to capture and share learning * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	8,111	1	8,111	13,371	,000
	Within Groups	70,365	116	,607		
	Total	78,476	117			
Empowering people toward a collective vision * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	8,286	1	8,286	11,393	,001
	Within Groups	82,904	114	,727		
	Total	91,190	115			
Connect the organisation to its environment * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	8,987	1	8,987	13,832	,000
	Within Groups	75,370	116	,650		
	Total	84,357	117			
Provide strategic leadership for learning * The company has an internal, offline (face-to-face) training/continuing education system	Between Groups (Combined)	8,020	1	8,020	11,597	,001
	Within Groups	80,218	116	,692		
	Total	88,238	117			

Source: own editing based on SPSS ANOVA analytics results.

(4) The use of videoconferencing and teleconferencing has an impact on the dimensions "Creating opportunities for continuous learning" ($r=7,1$, $p=0,000$), "Encouraging collaboration and teamwork" ($r=4,3$, $p=0,008$), "Establish systems to capture knowledge" ($r=5,2$, $p=0,004$) and "Provide strategic leadership for learning" ($r=6,9$, $p=0,002$), meaning that the more these technologies are used, the better these dimensions are perceived (Table 8).

Table 8. Correlations between "Usage of video and teleconference tools" and the DLOQ dimensions

		Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * The company regularly uses video or telephone conferencing for collaboration	Between Groups (Combined)	7,108	1	7,108	13,813	,000
	Within Groups	65,354	127	,515		
	Total	72,462	128			
Promote inquiry and dialogues * The company regularly uses video or telephone conferencing for collaboration	Between Groups (Combined)	1,437	1	1,437	2,334	,129
	Within Groups	78,224	127	,616		
	Total	79,661	128			
Encourage collaboration and team learning * The company regularly uses video or telephone conferencing for collaboration	Between Groups (Combined)	4,346	1	4,346	7,270	,008
	Within Groups	75,928	127	,598		
	Total	80,274	128			
Establish systems to capture and share learning * The company regularly uses video or telephone conferencing for collaboration	Between Groups (Combined)	5,183	1	5,183	8,437	,004
	Within Groups	78,018	127	,614		
	Total	83,202	128			
Empowering people toward a collective vision * The company regularly uses video or telephone conferencing for collaboration	Between Groups (Combined)	2,370	1	2,370	2,929	,089
	Within Groups	101,151	125	,809		
	Total	103,521	126			
Connect the organisation to its environment * The company regularly uses video or telephone conferencing for collaboration	Between Groups (Combined)	1,039	1	1,039	1,521	,220
	Within Groups	86,705	127	,683		
	Total	87,743	128			
Provide strategic leadership for learning * The company regularly uses video or telephone conferencing for collaboration	Between Groups (Combined)	6,954	1	6,954	9,938	,002
	Within Groups	88,866	127	,700		
	Total	95,819	128			

Source: own editing based on SPSS ANOVA analytics results.

(5) The emergence of the "Best Practices Forum" correlates with all dimensions ("Create continuous learning opportunity" $r=5,9$, $p=0,001$; "Promote Inquiry and Dialogue" $r=5,2$, $p=0,003$; "Encourage collaboration and team learning" $r=9,1$, $p=0,000$; "Establish systems to capture and share learning" $r=12,5$, $p=0,000$; "Empowering people towards a collective vision" $r=9,1$, $p=0,001$; "Connect organisation to its environment" $r=8,5$, $p=0,000$; "Provide strategic leadership for learning" $r=11,6$, $p=0,000$), but in terms of means, it seems lower rated among respondents (usage=36%). In other words, this tool appears in a few places, but where it appears, it has a clear positive relation to systematic knowledge management, in particular and the learning organization, in general. The presence of a CRM system shows similar correlations, and it is used by nearly 60 percent of companies (Table 9/a & Table 9/b).

Table 9/a. Correlations between „Existing Best Practice Forums” and DLOQ dimensions

		Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * There are existing "Best Practice" forums at the company	Between Groups (Combined)	5,981	1	5,981	10,841	,001
	Within Groups	55,172	100	,552		
	Total	61,153	101			
Promote inquiry and dialogues * There are existing "Best Practice" forums at the company	Between Groups (Combined)	5,179	1	5,179	8,996	,003
	Within Groups	57,571	100	,576		
	Total	62,750	101			
Encourage collaboration and team learning * There are existing "Best Practice" forums at the company	Between Groups (Combined)	9,091	1	9,091	15,879	,000
	Within Groups	57,251	100	,573		
	Total	66,342	101			
Establish systems to capture and share learning * There are existing "Best Practice" forums at the company	Between Groups (Combined)	12,489	1	12,489	21,580	,000
	Within Groups	57,873	100	,579		
	Total	70,362	101			
Empowering people toward a collective vision * There are existing "Best Practice" forums at the company	Between Groups (Combined)	9,091	1	9,091	12,018	,001
	Within Groups	75,640	100	,756		
	Total	84,731	101			
Connect the organisation to its environment * There are existing "Best Practice" forums at the company	Between Groups (Combined)	8,527	1	8,527	13,884	,000
	Within Groups	61,419	100	,614		
	Total	69,947	101			
Provide strategic leadership for learning * There are existing "Best Practice" forums at the company	Between Groups (Combined)	11,567	1	11,567	17,434	,000
	Within Groups	66,347	100	,663		
	Total	77,914	101			

Source: own editing based on SPSS ANOVA analytics.

Table 9/b. Correlations between „Existing Best Practice Forums” and DLOQ dimensions

		Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * There is a CRM System at the company	Between Groups (Combined)	5,693	1	5,693	7,843	,006
	Within Groups	98,718	136	,726		
	Total	104,411	137			
Promote inquiry and dialogues * There is a CRM System at the company	Between Groups (Combined)	5,116	1	5,116	6,246	,014
	Within Groups	111,398	136	,819		
	Total	116,514	137			
Encourage collaboration and team learning * There is a CRM System at the company	Between Groups (Combined)	5,142	1	5,142	7,790	,006
	Within Groups	89,771	136	,660		
	Total	94,913	137			
Establish systems to capture and share learning * There is a CRM System at the company	Between Groups (Combined)	7,725	1	7,725	11,371	,001
	Within Groups	92,390	136	,679		
	Total	100,115	137			
Empowering people toward a collective vision * There is a CRM System at the company	Between Groups (Combined)	6,045	1	6,045	7,416	,007
	Within Groups	110,857	136	,815		
	Total	116,902	137			
Connect the organisation to its environment * There is a CRM System at the company	Between Groups (Combined)	5,108	1	5,108	7,398	,007
	Within Groups	93,901	136	,690		
	Total	99,009	137			
Provide strategic leadership for learning * There is a CRM System at the company	Between Groups (Combined)	7,380	1	7,380	9,700	,002
	Within Groups	103,483	136	,761		
	Total	110,863	137			

Source: own editing based on SPSS ANOVA analytics.

(6) The presence of social platforms has a clear impact on teamwork and shows a strong correlation with the dimension "Encouraging cooperation and teamwork" ($r=4,3$, $p=0,009$), "Establish systems to capture and share learning" ($r=10,2$, $p=0,000$), "Connect the organisation to its environment" ($r=5,1$, $p=0,010$) and "Provide strategic leadership for learning" ($r=7,8$, $p=0,002$) (Table 10).

Table 10. Correlations between „Presence of internal social platforms and DLOQ dimensions

Create continuous learning opportunities * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	,479	1	,479	,704	,402
	Within Groups		119,628	176	,680		
	Total		120,107	177			
Promote inquiry and dialogues * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	2,204	1	2,204	2,890	,091
	Within Groups		134,254	176	,763		
	Total		136,458	177			
Encourage collaboration and team learning * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	4,335	1	4,335	6,969	,009
	Within Groups		109,492	176	,622		
	Total		113,827	177			
Establish systems to capture and share learning * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	10,219	1	10,219	15,098	,000
	Within Groups		118,449	175	,677		
	Total		128,668	176			
Empowering people toward a collective vision * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	3,757	1	3,757	4,168	,043
	Within Groups		156,841	174	,901		
	Total		160,598	175			
Connect the organisation to its environment * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	5,112	1	5,112	6,854	,010
	Within Groups		131,264	176	,746		
	Total		136,376	177			
Provide strategic leadership for learning * There is an internal social media platform (for communication and sharing experience and information)	Between Groups	(Combined)	7,763	1	7,763	9,827	,002
	Within Groups		139,041	176	,790		
	Total		146,804	177			

Source: own editing based on SPSS ANOVA analytics.

(7) Respondents who perceived that the IT systems available were easy to use rated the dimension "Creating a continuous learning opportunity" ($r=2,9$, $p=0,038$) higher than those who disagreed with the statement. It seems that easy usage of IT systems can contribute to the feeling that the organisation creates a continuous learning opportunity. However, this variable has no effect on all other dimensions, meaning it is not a sufficient condition for learning and sharing.

Table 11. Correlation between „Easy usage of IT systems” and „Create continuous learning opportunity” dimension of DLOQ questionnaire

		Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * Usage of IT systems installed at the firm is generally easy (user friendly softwares, apps)	Between Groups	2,903	1	2,903	4,353	,038
	Within Groups	120,723	181	,667		
	Total	123,626	182			

Source: own editing based on SPSS ANOVA analytics results

Operations of KM systems

This research has also investigated how organisations operate knowledge management systems and whether according to respondents, their organisation has the potential to become learning organisations. In so doing, the correlation between organisational performance and the different dimensions are considered as significant indicators. The results of the ANOVA showed that the performance indicator "Customer satisfaction is higher than in recent years" has significant correlations with three dimensions.

- *Providing continuous learning opportunities* ($r=2,4$, $p=0,012$): respondents who think that the organisation provides continuous learning opportunities tend to agree more with the statement that their organisations had higher customer satisfaction in the year of the survey than in the previous year. Where learning is not considered a factor, the mean value of the response to customer satisfaction is rather low ($M=2.55$; $SD=0,72$). However, those indicating some learning opportunities (mean values greater than 3) tend to have higher customer satisfaction than in the previous year.
- *Encourage collaboration and teamwork* ($r=2,7$, $p=0,003$); respondents who think that their organisations encourage collaboration and teamwork also tend to agree with the statement about customer satisfaction.
- *Systems are put in place to capture knowledge* ($r=2,4$, $p=0,028$); perhaps unsurprisingly, organisations that pay attention to putting systems in place to capture knowledge (i.e., to make tacit knowledge explicit) are more likely to achieve customer satisfaction.

Table 12. Correlations between „Perceived Customer Satisfaction level” and different dimensions of DLOQ dimensions

	Customer satisfaction is higher than in recent years	Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunity (index)	Between Groups	9,493	4	2,373	3,335	,012
	Within Groups	90,386	127	,712		
	Total	99,879	131			
Encourage collaboration and teamwork (index)	Between Groups	10,855	4	2,714	4,142	,003
	Within Groups	83,206	127	,655		
	Total	94,061	131			
Systems are put in place to capture knowledge (index)	Between Groups	9,609	4	2,402	2,813	,028
	Within Groups	108,452	127	,854		
	Total	118,061	131			

Source: own editing based on SPSS ANOVA analytics.

Leadership and the concept of “continuous learning”

When examining whether managers' need for continuous learning has an impact on the development of a learning culture, the results across the different dimensions show that the more prevalent the strategic attitude of managers is in an organisation towards learning, the more likely it is that

- *Opportunities for continuous learning are created* ($r=12,6$, $p=0,000$), i.e., employees talk openly about mistakes, can support each other's learning, the organisation provides resources and time for learning, and problems are seen as learning opportunities.
- *Interest and dialogue are encouraged* ($r=14,2$, $p=0,000$), i.e., open, and honest feedback, listening to each other, asking questions, respecting each other, and the energy to build trust.
- *Collaboration and teamwork are encouraged* ($r=12,3$, $p=0,000$), i.e., teams are given space to shape their goals, teams focus on working together beyond the task, review their positions in response to new information, team encouragement is present, and employees have confidence that their suggestions will be considered by the organisation.

- The organisation leaves room for *employees to shape the vision* ($r=15,9$, $p=0,000$), which includes recognising their initiative, giving them the choice to shape the division of labour and control over resources, encouraging calculated risk-taking, and seeking to ensure that different levels and groups have a shared vision.

Table 13. Correlations between the „Strategic leadership for learning” and other DLOQ dimensions

	Provide strategic leadership for learning	Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities	Between Groups	50,244	4	12,561	29,872	,000
	Within Groups	75,689	180	,420		
	Total	125,933	184			
Promote inquiry and dialogues	Between Groups	57,006	4	14,251	30,787	,000
	Within Groups	83,322	180	,463		
	Total	140,328	184			
Encourage collaboration and team learning	Between Groups	49,276	4	12,319	29,958	,000
	Within Groups	74,017	180	,411		
	Total	123,293	184			
Empowering people towards a collective vision	Between Groups	63,806	4	15,952	30,363	,000
	Within Groups	93,514	178	,525		
	Total	157,320	182			

Source: own editing based on SPSS ANOVA results.

The ANOVA test shows a significant result that mentoring and development in an organisation have an impact on the elements of the creation of continuous learning opportunities. That is, the more it is typical in an organisation for management to mentor and develop employees, the more likely it is that employees in will help each other in learning ($r=13,3$, $p=0,000$), interest and dialogue will be created ($r=14,4$ $p=0,000$), employees will interpret problems as learning opportunities ($r=12,0$, $p=0,000$), and the organisation will encourage employees to develop a customer-friendly approach ($r=17,7$, $p=000$) and to think globally ($r=19,5$, $p=0,00$)(Table 14).

Table 14. Correlations between mentoring and other DLOQ dimensions

	Leaders are mentoring and developing co-workers	Sum of Squares	df	Mean Square	F	Sig.
In the company employees are supporting each other's learning	Between Groups	53,060	4	13,265	16,000	,000
	Within Groups	158,348	191	,829		
	Total	211,408	195			
In the company, employees see problems they encounter at work as learning opportunities.	Between Groups	48,107	4	12,027	12,508	,000
	Within Groups	179,810	187	,962		
	Total	227,917	191			
Employee learning is recognised in the company	Between Groups	98,153	4	24,538	21,824	,000
	Within Groups	203,508	181	1,124		
	Total	301,661	185			
Promote inquiry and dialogues (index)	Between Groups	57,771	4	14,443	24,245	,000
	Within Groups	113,780	191	,596		
	Total	171,551	195			
Empowering people towards a collective vision (index)	Between Groups	62,129	4	15,532	26,346	,000
	Within Groups	111,422	189	,590		
	Total	173,551	193			
The company encourages employees to think globally	Between Groups	78,223	4	19,556	24,174	,000
	Within Groups	143,189	177	,809		
	Total	221,412	181			
The company encourages everyone to take a customer perspective when making decisions	Between Groups	71,097	4	17,774	21,312	,000
	Within Groups	153,454	184	,834		
	Total	224,550	188			

Source: own editing based on ANOVA analytics.

Organisational culture and the learning organisation

As the company's vision is an essential element of a learning organisation, we examined the impact of management support on the different dimensions of the vision characterizing the organization. The ANOVA test showed significant results in all cases. Thus, the more significant the support of management for the vision and mission, the more likely it is that

- *collaboration and teamwork are encouraged* ($r=12,6$, $p=0,000$), i.e., teams are given space to shape their goals, they also focus on collaboration and are rewarded for their joint successes. They can be confident that their suggestions will be considered, and they will be ready to revise their position in response to new information.
- *the organisation is connected to its environment* ($r=13,7$, $p=0,000$), meaning that it encourages employees to think globally, considers customer perspectives and the impact of decisions on employee morale, seeks applicable solutions to problems, by also working with external communities. (Table 15)

Table 15. Correlations between shaping the company's vision and other DLOQ dimensions

		Sum of Squares	df	Mean Square	F	Sig.
Encourage collaboration and team learning	Between Groups	50,329	4	12,582	32,032	,000
	Within Groups	75,025	191	,393		
	Total	125,354	195			
Empowering people towards a collective vision	Between Groups	83,041	4	20,760	44,287	,000
	Within Groups	89,535	191	,469		
	Total	172,576	195			
Connect the organisation to its environment	Between Groups	54,842	4	13,711	32,689	,000
	Within Groups	80,109	191	,419		
	Total	134,952	195			

Source: own editing based on SPSS ANOVA analytics.

The statistical test also showed a significant correlation between keeping managers up to date and providing continuous learning opportunities ($r=6,3$, $p=0,000$) and encouraging cooperation and teamwork ($r=7,5$, $p=0,000$). In other words, the more informed employees are about issues affecting the organisation, the more likely it is that, among other things, encouraging collaboration and teamwork will create the conditions for both individual and group learning (Table 16).

Table 16. Correlations between up-to-date information provided by the managers and other DLOQ dimensions

	Managers provide up-to-date information	Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities	Between Groups	25,184	4	6,296	11,543	,000
	Within Groups	103,638	190	,545		
	Total	128,822	194			
Encourage collaboration and team learning	Between Groups	29,902	4	7,476	15,077	,000
	Within Groups	94,208	190	,496		
	Total	124,111	194			

Source: own editing based on SPSS ANOVA analytics.

A significant component of organisational culture is the promotion of interest and dialogue. The analysis shows that the category means are significantly different from each other. In particular, encouraging interest and dialogue has an impact on

- the *creation of continuous learning opportunities* ($r=18,6$, $p=0,000$); the more typical it is for an organization to encourage interest and dialogue among employees, the more likely it is that employees will openly talk about mistakes and consider how to learn from those, help each other in learning, identify future competencies, and it is also typical that in this case the organisation will provide financial and time resources for learning.
- *encouraging collaboration and teamwork* ($r=17,8$, $p=0,000$), i.e., in organisations where dialogue is encouraged, teams are likely to be given space to shape their goals, team members are treated equally, there is a focus on how teams work together, colleagues tend to review their positions in response to new information, and care is taken to reward teams for their collective achievements. Hence, in such organisations, employees perceive that the organisation will take their suggestions into account.
- *Connectedness to the environment* ($r=11,1$, $p=0,000$); where collaboration and dialogue are encouraged, the organisation is more supportive of work/life balance, more likely to encourage employees to think globally and take account of customer views, more attentive to the impact of decisions on company morale and more likely to engage with external communities.
- and the presence of *learning at the strategic level* ("*Provide a strategic leadership for learning*"; $r=17,8$, $p=0,000$), a significant element of which is the attitude of managers to learning (Table 17/a and 17/b).

Table 17/a. Correlations between inquiry and dialogue based organisational culture and other DLOQ dimensions

	Promote inquiry and dialogues (index)	Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities (index)	Between Groups	74,512	4	18,628	42,331	,000
	Within Groups	98,133	223	,440		
	Total	172,645	227			
Encourage collaboration and team learning (index)	Between Groups	71,347	4	17,837	39,255	,000
	Within Groups	97,238	214	,454		
	Total	168,584	218			
Connect the organisation to its environment (index)	Between Groups	44,509	4	11,127	17,210	,000
	Within Groups	131,255	203	,647		
	Total	175,764	207			
Provide strategic leadership for learning (index)	Between Groups	71,351	4	17,838	30,193	,000
	Within Groups	115,204	195	,591		
	Total	186,555	199			

Source: own editing based on based on SPSS ANOVA Analytics.

Table 17/b. Correlations between inquiry and dialogue based organisational culture and other DLOQ dimensions

Dependent Variable	Promote inquiry and dialogues (index)		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval		
						Lower Bound	Upper Bound	
Create continuous learning opportunities (index)	1,00	2,00	-.56667	,26396	,333	-1,3866	,2533	
		3,00	-1,31915	,24431	,000	-2,0780	-,5603	
		4,00	-1,89041	,24705	,000	-2,6578	-1,1230	
		5,00	-2,34783	,27229	,000	-3,1936	-1,5020	
	2,00	1,00	,56667	,26396	,333	-,2533	1,3866	
		3,00	-,75248	,13910	,000	-1,1846	-,3204	
		4,00	-1,32374	,14386	,000	-1,7706	-,8769	
		5,00	-1,78116	,18385	,000	-2,3522	-1,2101	
	3,00	1,00	1,31915	,24431	,000	,5603	2,0780	
		2,00	,75248	,13910	,000	,3204	1,1846	
		4,00	-,57126	,10349	,000	-,8927	-,2498	
		5,00	-1,02868	,15432	,000	-1,5080	-,5493	
	4,00	1,00	1,89041	,24705	,000	1,1230	2,6578	
		2,00	1,32374	,14386	,000	,8769	1,7706	
		3,00	,57126	,10349	,000	,2498	,8927	
		5,00	-,45742	,15862	,084	-,9501	,0353	
	5,00	1,00	2,34783	,27229	,000	1,5020	3,1936	
		2,00	1,78116	,18385	,000	1,2101	2,3522	
		3,00	1,02868	,15432	,000	,5493	1,5080	
		4,00	,45742	,15862	,084	-,0353	,9501	
	Encourage collaboration and team learning (index)	1,00	2,00	-,78571	,28485	,111	-1,6708	,0994
			3,00	-1,26349	,26450	,000	-2,0854	-,4416
			4,00	-1,96177	,26704	,000	-2,7916	-1,1320
			5,00	-2,45963	,29098	,000	-3,3638	-1,5555
2,00		1,00	,78571	,28485	,111	-,0994	1,6708	
		3,00	-,47778	,14587	,033	-,9310	-,0245	
		4,00	-1,17606	,15042	,000	-1,6435	-,7086	
		5,00	-1,67391	,18969	,000	-2,2633	-1,0845	
3,00		1,00	1,26349	,26450	,000	,4416	2,0854	
		2,00	,47778	,14587	,033	,0245	,9310	
		4,00	-,69828	,10700	,000	-1,0308	-,3658	
		5,00	-1,19614	,15749	,000	-1,6855	-,7068	
4,00		1,00	1,96177	,26704	,000	1,1320	2,7916	
		2,00	1,17606	,15042	,000	,7086	1,6435	
		3,00	,69828	,10700	,000	,3658	1,0308	
		5,00	-,49786	,16173	,054	-1,0004	,0047	
5,00		1,00	2,45963	,29098	,000	1,5555	3,3638	
		2,00	1,67391	,18969	,000	1,0845	2,2633	
		3,00	1,19614	,15749	,000	,7068	1,6855	
		4,00	-,49786	,16173	,054	-1,0004	,0047	
Connect the organisation to its environment (index)		1,00	2,00	-,42308	,36419	,853	-1,5553	,7091
			3,00	-,96386	,33993	,094	-2,0206	,0929
			4,00	-1,60000	,34205	,000	-2,6634	-,5366
			5,00	-1,65217	,36861	,001	-2,7981	-,5062
	2,00	1,00	,42308	,36419	,853	-,7091	1,5553	
		3,00	-,54078	,18072	,066	-1,1026	,0210	
		4,00	-1,17692	,18468	,000	-1,7510	-,6028	
		5,00	-1,22910	,23017	,000	-1,9447	-,5135	
	3,00	1,00	,96386	,33993	,094	-,0929	2,0206	
		2,00	,54078	,18072	,066	-,0210	1,1026	
		4,00	-,63614	,13049	,000	-1,0418	-,2305	
		5,00	-,68832	,18948	,012	-1,2774	-,0993	
	4,00	1,00	1,60000	,34205	,000	,5366	2,6634	
		2,00	1,17692	,18468	,000	,6028	1,7510	
		3,00	,63614	,13049	,000	,2305	1,0418	
		5,00	-,05217	,19326	,999	-,6530	,5486	
	5,00	1,00	1,65217	,36861	,001	,5062	2,7981	
		2,00	1,22910	,23017	,000	,5135	1,9447	
		3,00	,68832	,18948	,012	,0993	1,2774	
		4,00	-,05217	,19326	,999	-,5486	,6530	
	Provide strategic leadership for learning (index)	1,00	2,00	-,32000	,34942	,933	-1,4067	,7667
			3,00	-1,11392	,32549	,022	-2,1262	-,1017
			4,00	-1,81159	,32715	,000	-2,8290	-,7942
			5,00	-2,19048	,35581	,000	-3,2970	-1,0839
2,00		1,00	,32000	,34942	,933	-,7667	1,4067	
		3,00	-,79392	,17638	,001	-1,3425	-,2454	
		4,00	-1,49159	,17943	,000	-2,0496	-,9336	
		5,00	-1,87048	,22752	,000	-2,5780	-1,1629	
3,00		1,00	1,11392	,32549	,022	,1017	2,1262	
		2,00	,79392	,17638	,001	,2454	1,3425	
		4,00	-,69767	,12665	,000	-1,0915	-,3038	
		5,00	-1,07655	,18871	,000	-1,6634	-,4897	
4,00		1,00	1,81159	,32715	,000	,7942	2,8290	
		2,00	1,49159	,17943	,000	,9336	2,0496	
		3,00	,69767	,12665	,000	,3038	1,0915	
		5,00	-,37888	,19156	,421	-,9746	,2169	
5,00		1,00	2,19048	,35581	,000	1,0839	3,2970	
		2,00	1,87048	,22752	,000	1,1629	2,5780	
		3,00	1,07655	,18871	,000	,4897	1,6634	
		4,00	-,37888	,19156	,421	-,2169	,9746	

*. The mean difference is significant at the 0.05 level.

Source: own editing based on based on SPSS Scheffe Analytics.

Networking – collaboration with external communities

The ANOVA test showed that there is a significant relationship between existing external cooperations and the creation of continuous learning opportunities ($r=3,6$, $p=0,000$), the strength and direction of the relationship was tested using Spearman's rank correlation, which showed that the relationship is strong and positive ($r=3,5$, $\rho=0,32$). Thus, the more prevalent the collaboration. the more certain the Presence of continuous learning opportunities is. Also, the more prevalent the Presence of continuous learning opportunities, the more prevalent the collaborations are, as perceived by the employees (Table 18/a and 18/b).

Table 18/a. Correlation between co-operation with external communities and Continuous learning opportunity dimension of DLOQ

		Sum of Squares	df	Mean Square	F	Sig.
Create continuous learning opportunities * The company works with external communities (organisations, associations, chambers, clusters, educational institutions, etc.) to achieve common goals.	Between Groups (Combined)	14,287	4	3,572	6,181	,000
	Within Groups	103,439	179	,578		
	Total	117,727	183			

Source: own editing based on SPSS ANOVA analytics

Table 18/b. Correlation between co-operation with external communities and Continuous learning opportunity dimension of DLOQ

			The company works with external communities (organisations, associations, chambers, clusters, educational institutions, etc.) to achieve common goals.	Create continuous learning opportunities
Spearman's rho	The company works with external communities (organisations, associations, chambers, clusters, educational institutions, etc.) to achieve common goals.	Correlation Coefficient	1,000	,327**
		Sig. (2-tailed)		,000
	Create continuous learning opportunities	N	184	184
		Correlation Coefficient	,327**	1,000
		Sig. (2-tailed)	,000	
		N	184	235

Source: own editing based on SPSS Spearman rank correlation.

The Spearman correlation also showed a significant strong positive relationship between continuous learning opportunities and the encouragement to think globally ($r=10,8$, $p=0,000$, $\rho=0,58$). That is, the more present continuous learning opportunities are, the more likely it is that employees have the ability to think globally (Table 19/a and 19/b).

Table 19/a. Correlation between global thinking and continuous learning opportunity. Source: own editing based on ANOVA analytics

Create continuous learning opportunities * The company encourages employees to think globally	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	43,230	4	10,807	21,035	,000
Within Groups	95,566	186	,514		
Total	138,796	190			

Table 19/b. Correlation between global thinking and continuous learning opportunity. Source: own editing based on Spearman's rank correlation

			Continuous learning opportunity	The company encourages employees to think globally	
Spearman's rho	Continuous learning opportunity	Correlation Coefficient	1,000	,582**	
		Sig. (2-tailed)		,000	
			N	235	191
	The company encourages employees to think globally	Correlation Coefficient	,582**	1,000	
Sig. (2-tailed)		,000			
		N	191	191	

Discussion

According to the Learning Organisation Model (Watkins & Marsick, 1993), learning organisations first should see if they can identify themselves with the concept itself. For this, they need to understand what learning and knowledge are, how the learning process is structured and what the relationships are between the different dimensions of the model.

The results show that organisations seem to focus most on creating opportunities for continuous learning, stimulating interest and dialogue, and encouraging teamwork. Areas with less emphasis are (1) encouraging employees to participate in shaping the vision, (2) connecting to the environment, and (3) creating knowledge capture systems. Creating opportunities for continuous learning and encouraging collaboration and teamwork are thus common in organisations, and the results of the questionnaire suggest that both have an impact on perceived customer satisfaction. If we take Nonaka and Takeuchi's (1995) spiral model and consider its first step, namely, socialisation, we understand that individuals' tacit knowledge is surfaced and shared in groups through collaboration. However, externalisation – where knowledge becomes explicit through fixation and shared within teams – does not necessarily take place. In its absence, the combinatorial phase – where explicit knowledge is interpreted, sorted, synthesised, and transformed into new forms – is also difficult to achieve. Hence, this calls into question the internalisation phase, where new knowledge would be put into practice and adapted to individual knowledge. One of the challenges of knowledge management is organisational learning, which is based on the learning of individuals, because "without individual learning there can be no organisational learning, but individual learning is no guarantee of organisational learning" (Senge, 1990, p.139). From the organisational point of view, an important aspect of knowledge management is the feedback of experience and the incorporation of knowledge into the memory of the organisation in a way that allows for two-loop learning. This means that the organisation, and

within it the individual, is constantly reflecting on and 'questioning' the practices and processes already in place (Gamble and Blackwell, 2001).

Another challenge today occurs in adult learning, namely, how to shift access to learning content and responsibility for learning into spaces that are sufficiently flexible and open to individual learning pathways, and how to make it attractive for adults to take the risks that arise from the contrasts between current knowledge, values and norms and new knowledge, while the expected rewards are unknown. It is essential that both the organisation and the individual benefit from the advantages of knowledge transfer (cf. Senge, 1999). Several concepts of work-based learning define the workplace as (1) "a workplace where knowledge is created and shared", (2) "the workplace is part of the knowledge society" or (3) "the workplace is an organic entity capable of capturing and adapting knowledge" (Candy and Matthews, 2003). Learning and knowledge are closely related concepts, which also implies that effective knowledge management systems must take into account the differences between learners and the factors that influence adult learning (Gamble and Blackwell, 2001.).

Providing continuous learning opportunities and encouraging cooperation and teamwork are common in companies, and the results of the questionnaire show that both have an impact on customer satisfaction. Less common is the Presence of systems for capturing knowledge, which also has an impact on customer satisfaction, so improving this area could have a positive impact on the relationship between providers and their customers. Petr Suchánek and Maria Králová (2019) studied the correlation between customers' product knowledge and customer satisfaction. Results show that product knowledge directly influences satisfaction and business competitiveness, which is also influenced by customer's loyalty (Suchánek, Králova, 2019). This means that in the long term, it is vital to take the knowledge of the products and the customer's behaviour into consideration, which also emphasises our study's results that the Presence of systems for capturing knowledge has an increasingly important role in knowledge management systems. The customer data helps to understand the customer, so to develop strong bonds of trust and commitment with them (Rajan & Jayanthi, 2020). Sharing information about customers, customer involvement, long-term partnerships, joint problem solving, and technology-based CRM can lead to business success and enhance innovation capabilities, namely product, process, marketing, service and administrative innovation (Migdadi, 2019). Recently organisations realised that KM plays a key role in CRM success (Salomann et al., 2006) as CRM processes are based on a large amount of knowledge (Bueren et al., 2005), so this led to the integration of customer relationship management (CRM) and knowledge management (KM) (Migdadi, 2019).

In both Nonaka and Takeuchi (1995) studies and Watkins and Marsick's (1993)' models, management plays a significant role in knowledge management, which our results have also confirmed. We thus claim that managers should be aware of their role in managing organisational knowledge and be willing to reflect on and adjust their behaviour which influences the complex processes of becoming a learning organisation.

In so doing, the ICT investments pay off; our results show that the more it is invested in ICT infrastructure, the more likely the organisation will have more highly skilled employees in its total workforce. As a result, there should be an increase in employees who acquire new skills. However, it should be remembered that ICT only provides the essential infrastructure and the environment to support learning; more is needed to encourage effective learning (Barret, 2004). Hence, technology facilitates knowledge management, accelerating and facilitating organisational learning; it increases the organisation's ability to make more informed decisions and may impact its performance and competitiveness. Nevertheless, the human dimension contributes to organisational learning, which then plays a crucial role in the efficient implementation of information technology systems, primarily when enterprise resource planning (ERP) and customer relationship management (CRM) systems are used (Malik et al., 2018).

In terms of tools, the organisations surveyed use a wide range of information technology; the most common are video or teleconferencing systems, while the least common is the Presence of the "Best Practices" forums. The use of video and teleconferencing positively impacts several dimensions, such as the creation of continuous learning opportunities, the encouragement of collaboration and

teamwork, and the perception of managers' strategic approach to learning. The Presence of a "knowledge repository" database shows positive correlations with all dimensions of the DLOQ questions that the availability and the use of an information database on products/services influences the stimulation of interest and dialogue among employees, the Presence of knowledge capture systems, the shaping of the company vision and the strategic attitude of managers towards learning. Among the training opportunities and systems, in-person training significantly impacts employees' perception of creating continuous learning opportunities more than online training. The least common systems are the "Best Practices" forums, although these positively impact all dimensions of the DLOQ questionnaire. Social platforms have the most significant impact on the perception of teamwork.

As for how organisations operate knowledge management systems and whether they are likely to become networked learning organisations, we found that the continuous learning needs of management impact the development of a learning culture. The more positive the respondents felt about this, the more they perceived the "presence of continuous learning opportunities", the "encouragement of interest and dialogue", the "encouragement of collaboration and teamwork", and "the opportunity to participate in shaping the vision" as positive. Further, where managers support employees to participate in shaping the vision, there is a greater likelihood that teams will be given space to shape their goals, focus on collaboration and are more likely have a reward system for shared success. Additionally, the up-to-date information managers provide impacts how employees perceive the creation of continuous learning opportunities and the encouragement of cooperation and teamwork. In other words, the more informed employees are about issues affecting the organisation, the more likely they are to create individual and group learning conditions, including collaboration and teamwork. Encouraging interest and dialogue also create opportunities for continuous learning and teamwork and for connecting with the environment. Namely, where this is encouraged, employees are more likely to help each other learn, identify skills for the future, talk openly about mistakes, pay attention to team collaboration (including rewards), and the company provides resources for learning. Encouraging dialogue also impacts taking customer perspectives into account and achieving global thinking.

Mentoring, by one definition, means a technique that strengthens knowledge management by giving opportunities for conversations across boundaries and creating a new opportunity to meet experts both inside and outside the organisation (Chakpitak, 2010). Based on our results, mentoring and development also substantially impact continuous learning opportunities. Where some form of the mentoring process is in place, employees are more likely to help each other learn, interest and dialogue are encouraged, employees interpret problems as learning opportunities, and they are more likely to consider the customers' perspectives. Where mentoring opportunities are available, there is a greater chance of motivating people to learn from each other. Mentoring is an effective method of transferring knowledge that contributes to building the organisational memory, which has significant potential for organisations' competitive advantage. A request to train and mentor others means empowerment that has a positive effect on the organisation-based self-esteem also (Dunham, 2010); it brings an additional benefit by supporting building relationships and trust within the organisation (Chakpitak, 2010).

Finally, if the organisation is more environmentally focused, employees are more likely to be willing to think globally and take customer perspectives into account. However, although respondents who perceived IT systems as easy to use rated learning opportunities in the company higher, IT infrastructure is necessary but needs to be a sufficient condition for becoming a learning organisation. The enlisted other human dimensions must also be available. Cooperation with and embeddedness in the external environment shows weak results, although it positively impacts the creation of continuous learning opportunities. In line with our findings, Von Krogh, Roos and Slocum (1994) place particular emphasis on the network of communities, which is inevitable today without an account of virtual communities. It also shows where firms who want to become learning organisations can implement development plans.

As for the relationship between connectivist learning techniques, systems and tools and knowledge acquisition and transfer processes, we found that cooperation with external organisations has a clear

positive impact on creating continuous learning opportunities. Thus, the more prevalent such collaborations are, the more confident the Presence of ongoing learning opportunities is. Moreover, the more prevalent the Presence of ongoing learning opportunities is, the more prevalent collaborations become. Similarly, the more dominant the Presence of continuous learning opportunities is, the more likely employees will be able to think globally.

Conclusions

Our study shows that organisations may need to be fully aware of what learning and knowledge are, how their learning processes may be structured and how these could help them to become a learning organisation. They primarily focus on providing continuous learning opportunities to the employees, neglecting other essential factors such as connectedness to the environment or establishing systems for capturing knowledge. They face challenges in effective adult learning, especially in the externalisation and internalisation phases. Implementing mentoring processes hence could be an efficient tool to provide partial solutions.

Customer satisfaction is a crucial success factor for business competitiveness, although its connectedness to knowledge management systems needs to be recognised and more integrated, as we found in this study. Understanding and enhancing this factor could lead to increased productivity and innovation capabilities.

This study also claims that managers may need to be more fully exploiting their potential for managing organisational knowledge. However, their behaviour influences the complex process of becoming a learning organisation. Development of the learning culture also relates to their potential; nevertheless, some factors, such as encouragement of shared interest, dialogue, teamwork, and collaboration or employees' participation in shaping the companies' vision, clearly play a supportive role in this regard.

Finally, ICT investments pay off; although technology can only be seen as a facilitator of KM, there needs to be a clear understanding of technology's influence on other dimensions such as strategy, leadership, future vision and continuous learning opportunities.

References

- Aboelmaged M. G. (2018). Knowledge sharing through enterprise social network (ESN) systems: Motivational drivers and their impact on employees' productivity. *Journal of Knowledge Management* (2)22, pp. 362 - 383
- Aiginger, K. in P. – Devine, Y., Katsoulacos and R., Sugden (editors) (1995): *Creating a Dynamically Competitive Economy: Defining Competitiveness of a Nation and a Case Study*; *Competitiveness, Subsidiarity and Objectives*. Routledge, London
- Argote, L, Hora, M. (2017). Organizational Learning and Management of Technology. *Production and Operations Management* (4)26, pp 579-590
- Barrett, M., Cappleman, S., Shoib, G. & Walsham, G. (2004). Learning in Knowledge Communities. *European Management Journal*, 22(1), 1–11. https://www.jbs.cam.ac.uk/fileadmin/user_upload/research/workingpapers/wp0502.pdf
- Barney, J (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120. <https://journals.sagepub.com/doi/10.1177/014920639101700108>, letöltve: utolsó letöltés: 2019. február.24.
- Bueren, A., Schierholz, R., Kolbe, L.M. and Brenner, W.(2005), "Improving performance of customer-processes with KM", *Business Process Management Journal*, (5)11. pp. 573-588.
- Bukowitz, W. & Williams, R.L. (1999). *The Knowledge Management Fieldbook*. Financial Times Prentice Hall, London
- Calvard T. (2015). *Big Data, organizational learning, and sensemaking: Theorizin interpretive challenges under conditions of dynamic complexity*. (1)47. Sage Journals. <https://doi.org/10.1177/1350507615592113>

- Cong Qi & Patrick Y. K Chau (2018) Will enterprise social networking systems promote knowledge management and organizational learning? An empirical study, *Journal of Organizational Computing and Electronic Commerce*, 28:1, 31-57, DOI: 10.1080/10919392.2018.1407081
- Srivichai, P., Meksamoot, K., Jengjalern, A., & Chakpitak, N. (2012). *Integrated knowledge management system-based mentoring for new university staff development*. 2011 Ninth International Conference on ICT and Knowledge Engineering. <https://doi.org/10.1109/ICTKE.2012.6152397>
- Dalkir, K. (2005). *Knowledge Management in Theory and Practice*. Oxford: Elsevier Inc., UK
- Darroch, J. (2005). Knowledge management, innovation and firm performance. *Journal of Knowledge Management*, 9 (3), 101–115. <https://doi.org/10.1108/13673270510602809>
- Davenport, H.T., Prusak, L. (2000). *Working Knowledge, how organizations manage what they know*. Harvard Business School Press.
- Fayol H. (2002). *Critical Evaluations in Business Management*. Ed: Wood J. and Wood M.C., Taylor and Francis, London
- Gamble P., Blackwell J (2001). *Knowledge Management: A State Of The Art Guide*. Kogan Page Ltd.
- Halász, G. (2007). Tanulószervezet – eredményes oktatás. *Új Pedagógiai Szemle*, 2007 (3-4), 37-45. <https://folyoiratok.oh.gov.hu/uj-pedagogiai-szemle/tanuloszervezet-eredmenyes-oktatas>
- Halász G., Fazekas Á. & Horváth L. (2017). Innováció az oktatásban: az Innova kutatás elméleti-fogalmi keretei. *Neveléstudomány*. 4(26). DOI: 10.21549/NTNY.20.2017.4.2
- Israilidis, J., Siachou, E., Cooke, L. & Lock, R. (2015). Individual variables with an impact on knowledge sharing: the critical role of employees' ignorance. *Journal of Knowledge Management*, 19(6). 1109–1123. <http://dx.doi.org/10.1108/JKM-04-2015-0153>
- Kane G.C. és Alavi M. (2007). Information Technology and Organizational Learning: An Investigation of Exploration and Exploitation Processes. *Organization Science*. 18(5). 796-812. https://www.researchgate.net/publication/221599333_Information_Technology_and_Organizational_Learning_An_Investigation_of_Exploration_and_Exploitation_Processes
- Klimkó G. (2001). *A szervezeti tudás feltérképezése*. Doktori értekezés. Budapesti Közgazdaságtudományi és Államigazgatási Egyetem.
- von Krogh G., Roos J., Slocum K. (1994). An Essay on corporate Epistemology, *Strategic Management Journal*, 15., 53-71. https://www.researchgate.net/publication/31672276_Organizational_epistemology_G_Von_Krogh_J_Roos
- von Krogh G, Roos J., Kleine D. (1998). *Knowing in Firms, Understanding, Managing and Measuring Knowledge*. Sage Publications Ltd.
- Kshirsagar A., Mansour T., McNally L, Metakis M. (2020). Adopting workplace learning in the time of coronavirus, *People & Organizational Performance*, (03), McKinsey & Company. <https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/adapting-workplace-learning-in-the-time-of-coronavirus>
- Liebowitz, J. (2001). Knowledge management and its link to artificial intelligence. *Expert Systems with Applications*, 20 (1), 1–6. [https://doi.org/10.1016/S0957-4174\(00\)00044-0](https://doi.org/10.1016/S0957-4174(00)00044-0)
- Malik, S., Chetty, M., Chadhar, M. (2018) *Information technology and organizational learning interplay: A survey*. 29th Australasian Conference on Information Systems (ACIS 2018); Sydney, Australia; 3rd December 2018 p. 1-11. <http://acis.aaisnet.org/archive.php>
- Marsick, V.J. (2013). The Dimensions of a Learning. Organization Questionnaire (DLOQ): Introduction to the Special Issue Examining DLOQ Use Over a Decade, *Advances in Developing Human Resources*, 15(2), 127–132. <https://doi.org/10.1177/15234223134759>,
- Marsick, V.J., Watkins, K.E., (2003): Demonstrating the Value of an Organization's Learning Culture: The Dimensions of the Learning Organization Questionnaire, *Advances in Developing Human Resources*, 5(2), 132 – 151. doi:10.1177/1523422303005002002 <https://journals.sagepub.com/doi/10.1177/1523422303005002002>
- Merriam, S. B. (1998). *Qualitative research and case study applications in education*. Josey-Bass.

- Migdadi M.M. (2019). Knowledge management, customer relationship management and innovation capabilities. *Journal of Business & Industrial marketing*. (1)71. <https://doi.org/10.1108/JBIM-12-2019-0504>
- Nonaka, I., Takeuchi, H. (1995): *The Knowledge-Creating Company. How Japanese Companies Create the Dynamics of Innovation*. Oxford University Press.
- Nonaka, I., Peltokorpi, V. (2006): Objectivity and subjectivity in knowledge management: A review of 20 top articles, *Knowledge & Process Management*, 13, 73-82. https://www.researchgate.net/publication/227712846_Objectivity_and_subjectivity_in_knowledge_management_A_review_of_20_top_articles
- Nilsen, P. & Ellström, P. (2012.) Practice-Based Innovation Through Reflection at Work. In Melas, H & Harmaakorpi, V (Eds.), *Practice Based Innovation: Insights, Applications and Policy Implications*. 155-172. New York: Springer
- Nonaka, I. & Takeuchi, H. (1995). *The Knowledge-Creating Company. How Japanese Companies Create the Dynamics of Innovation*. Oxford: Oxford University Press.
- North, K. & Reinhardt, R & Schmidt A. (2004). *The Benefits of Knowledge Management: Some empirical evidence*. Paper presented at the OKLC 2004 Conference in Innsbruck <http://www.ofenhandwerk.com/oklc/Prog12.html#a>
- Omotayo, F. O. (2015). Knowledge Management as an Important Tool in Organizational Management: A Review of Literature. *Library Philosophy and Practice* (e-Journal). <http://digitalcommons.unl.edu/libphilprac/1238>
- OECD (1997). *Regional Competitiveness and Skills*, Párizs: OECD
- Pawitt, K. (1984). Sectoral patterns of technical change: towards a taxonomy and a theory. *Research policy*, 13(6), 343 – 373. <https://www.sciencedirect.com/science/article/abs/pii/0048733384900180>
- Petr Suchánek & Maria Králová (2019). Customer satisfaction, loyalty, knowledge and competitiveness in the food industry, *Economic Research-Ekonomska Istraživanja*, 32:1, 1237-1255, <https://doi.org/10.1080/1331677X.2019.1627893>
- Quinn E. R. & Cameron S.K. (2005). *Diagnosing and Changing Organisational Culture: Based on the Competing Values Framework*. San Fransisco: Jossey-Bass Business & Management Series
- Rajan A. Jayanthi V. (2020). *The Impact of Customer Knowledge Management and Customer Satisfaction on Customer Trust and Loyalty in Banking Sector*. (10)68. <https://www.researchgate.net/publication/361579324>
- Rothwell, R (1992). Successful industrial innovation: critical factor for the 1990s. *R&D Management*, 22(3). 221 – 240. <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-9310.1992.tb00812.x>
- Rodriguez, E. (Ed.). (2017). *The Analytics Process: Strategic and Tactical Steps* (1st ed.). Auerbach Publications. <https://doi.org/10.1201/9781315161501>
- Salomann, H., Dous, M., Kolbe, L. and Brenner, W. (2006), Advancing CRM initiatives with knowledge management, *Journal of Information Science and Technology*, (2)3. pp. 24-44.
- Sandhawalía S., Dalcher D. (2011). Developing Knowledge Management Capabilities: A Structured Approach. *Journal of Knowledge Management*, 15(2), 313-328. <https://doi.org/10.1108/13673271111119718>
- Senge P.M. (1994). *Az öt alapelv*. HVG Kiadó.
- Senge P.M. (1990). *The fifth Discipline*. The Art & Practice of the Learning Organisation. Random House
- Schmidt, B. (2009). *Bildung im Erwachsenenalter [Education in adulthood]*. In B. Schmidt, & R. Tippelt (Eds.), *Handbuch Bildungsforschung* (pp. 661–675). VS.
- Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology & Distance Learning*, 2, 3-10. https://jotamac.typepad.com/jotamacs_weblog/files/Connectivism.pdf
- Stéber A., Kereszty O. (2015). A munkahelyi tanulás támogatási formái – a tudásmenedzsment szerepe. Az elméleti kutatások kritikai elemzése. *Szakképzési Szemle*, 31(4), 34-52.

- Tóbiás Sz. (2016). *Tudásmenedzsment és tudásprojektek vállalati gyakorlata a szlovák-magyar határtérségben*. Doktori értekezés. Széchenyi István Egyetem.
- Vargha A. (2007): *Matematikai statisztika pszichológiai, nyelvészeti és biológiai alkalmazásokkal* (2. kiadás). Pólya Kiadó, Budapest
- Watkins, K. E., Marsick, V. J. (1993): *Sculpting the learning organization*. Jossey-Bass.
- Wiig, K.M. (1993): *Knowledge Management Foundations, How People and Organizations Create, Represent, and Use Knowledge*. Schema Press Ltd.
- Wu L, Lin I (2013). Knowledge sharing and knowledge effectiveness: Learning orientation and co-production in the contingency model of tacit knowledge. *Journal of Business & Industrial Marketing*, 28(8), 672-686, <https://doi.org/10.1108/JBIM-04-2011-0050>
- Yin, R. K. (2009). *Case Study Research: Design and Method*. Sage Publications.
- Yazan, B. (2015). Three approaches to case study methods in education: Yin, Merriam, and Stake, Stake. *The Qualitative Report*, 20(2). 134-152. <http://www.nova.edu/ssss/QR/QR20/2/yazan1.pdf>.
- Zang J., Bookhamer P. (2016). Knowledge Management in a Global Context, *Information Resources Management*, 29(1):57-74, doi:10.4018/IRMJ.2016010104. <https://www.igi-global.com/gateway/article/143168>.

Mariann FEKETE – Péter TÓTH – Adam NAGY

Who will save the world? – from the missing hero to the index of Captain Planet

Large-scale youth research has been conducted in Hungary every four years since 2000. The representative sample on age, gender, education, type of settlement, and place of residence (district/city) among 15-29-year-olds are used to learn about the life situation of young people, to follow their lifestyle changes and (in theory) to prepare (typically public policy) decision-making. The most critical events and specific problems of Hungarian youngsters aged 15-29. Eight thousand youngsters were examined in 2020 as well. The research comprehensively analyzes the world of young people in terms of demographic structure, a family of origin, family formation and childbearing. Aspects of social stratification, education and labour market status and life paths. It reviews the characteristics of economic resources, health, consumption and online existence, identity and self-image, value system, leisure space, the specialities of the generational problem map, migration and youth, and the civil world. We use the data of wave the 2020 large-scale Hungarian Youth Research for mapping the "Hungarian Captain Planet"¹.

The most determining person of climate change movements among youngsters is Greta Thunberg, who inspired the Fridays For Future movement, and who also encourages the masses to act to cover and thematize climate crisis. In 2019, the movement attracted attention to the necessity of excessive and superfluous consumerism, the importance of purchasing from local producers, the reduction of industrial consumerism of products of animal origin, the importance of recycling and reusing, to prioritizing public transport and cycling, to minimalizing the use of aeroplanes or even abandoning them appeared in Hungary as well (Fridays For Future, 2019).

In the background of the seemingly radical slogan of "Sacrifice the Present for the Future", reduction of consumerism and change of lifestyle appear as expectations. In the background of climate consciousness, anxiety and uncertainty can also be detected. Not only is this Future uncertain, but also gloomy. The report of the Intergovernmental Panel on Climate Change 2018 (IPCC, 2018) raises awareness that we have 12 years to save the planet, according to experts, which would need worldwide, global involvement among governments, large enterprises and civilians. Sociology refers to the mechanism as "the missing hero trap", which hinders members of a particular community from achieving something which would not require too much sacrifice individually; however, this act would mean a lot to the whole community. This is the most dangerous social trap, as the individual's responsibility is almost intangible. "Why exactly me?" asks the member of the particular community, and the question is relatively justified as a worldwide catastrophe cannot be hindered merely by individual goodwill (Hankiss, 1979:48).

In our case, "members of the community" are governments, companies and societies as human groups, and hence, in this regard, supportive regulation, usage of environmental-friendly technologies, and suitable corporate resolutions are crucial; however, it is without a doubt that the individual also has a significant role as (s)he is a constituent of the society itself (e.g. selective waste collection, preference for public transportation or environmental-conscious shopping).

The sixth wave of considerable data youth research questionnaire consists of questions which could examine the environmental consciousness of youngsters aged 15-29, their attitudes and acts towards environmental protection and climate change. The received data reveal that Hungarian youngsters are

¹ Captain Planet is a superhero, who is the main character of the animated series having the same title. The focus is on environmental protection and diverse social problems; the only weak point of the Captain is a polluted environment which noticeably weakens him. Each episode of the animated series deals with environmental issues like deforestation, air or water pollution, overpopulation.

committed to climate protection, especially regarding economic consumption (electricity, water and heating) and selective waste collection.

These two factors have the highest means on a 4-element-grading scale (Table 1). Hungarian youths are the least interested in changing their transportation habits). The value of the mode is three at every item ("rather pays attention").

Table 1. "How much are you concerned about..." N2020=2000²

	number of elements	mean	deviation
Collecting waste selectively	1983	3,08	0,809
Having the least possible amount of waste	1986	3,02	0,781
Burdening the environment to the least possible extent as far as transport is concerned (Bicycle, public transport, railway)	1977	2,88	0,844
Saving electricity, heating and water as much as possible	1983	3,10	0,796

If we take the more general level, the level of the state, large companies, and society and not the level of individual acts into consideration, which is not so tangible for the individual, hence, (s)he assigns duty, responsibility and expenses to others. If we expect only commitment from the individual, we can detect higher means of expressing strong agreement (Table 2).

Table 2. "In your opinion, how important is ...?" N2020=2000³

	number of elements	mean	deviation
Saving values of nature (forests, rivers, lakes, etc.)	1972	3,45	0,715
Usage of renewable energy resources (e.g. solar energy)	1969	3,37	0,734
Banning disposable (single-use) plastic	1962	3,28	0,773
That society/state should be against illegal dumping	1969	3,39	0,724
That enterprises, multinational companies should adopt environmental-friendly technologies	1964	3,36	0,724
That public and individual transport should use electricity	1957	3,24	0,737
That state should finance projects concerning the implementation of environmental protection, conservation and climate protection.	1963	3,38	0,731

The mode value is 4 ("fundamental"), except for replacing public and individual transport with electric vehicles, as in this case, the mode is 3. Protecting nature is the most important for youngsters (mean: 3,45), followed by the increased involvement of the state, society and multinational companies. According to the participants, the least important is the usage of electric vehicles; however, on average, their value is still high.

Hungarian youngsters and ecological-conscious consumer behaviour

Youths of Generation Z are often called Greta Generation, who fight fiercely and loudly against climate change; they attempt to make a positive change and are ready to make the necessary sacrifice to solve the problems that previous generations caused.

² The interviewee valued on a 4-element grading scale where 1= not concerned at all, 4= very much concerned

³ The interviewee valued on a 4-element grading scale where 1= not important at all, 4= very important

According to the research results of GWI (2021), Greta Generation is much more concerned about climate protection and sustainability than fashion, their reputation or their peers' opinions about them.

The research also sheds some light on what teenagers expect from brands that they should be committed to climate change and environmental protection, which reveals the vast Impact Greta Thunberg has on youngsters. It seems that theoretically and from a moral commitment point of view, young generations are combative environmental activists; however, as members of consumer society – regarding their consumption behaviour – they are not really⁴.

The participants had to value a 4-element grading scale and how eco-conscious their purchases are. According to Table 3, we can state that they pay attention to products' environmental impact the least (2,55 mean value). To the delight of marketers, they instead pay particular attention to the popularity of the brand itself (2,91 mean value).

Table 3. "When you do the shopping, do you pay attention or not...?" N2020=2000⁵

	number of elements	mean	deviation
To the country of origin (CO)	1994	2,67	0,897
Whether brand of the product is well-known	1991	2,91	0,827
How much environmental impact the product has (single-use product, too much wrapping, manufacture is distant, etc.)	1988	2,55	0,917
To buy Hungarian products?	1995	2,68	0,872

In conclusion, youths pay less attention to the country of origin of goods and prefer something other than Hungarian products too.

Using the question's four aspects, we created a consumer index of an eco-conscious youngster⁶[6]. By putting the consumer index under the microscope, we can state that two-tenths of youngsters (20%) belong to the upper third of the index (between 12 and 16 points), more than one-fifth of them (22%) do not or rather not pay attention to the aspects above during shopping. The Impact of gender is significant on eco-conscious shopping as women primarily consider environmental-conscious aspects⁷; however, this explanation is weak. The Impact of age⁸ and education⁹ is intense, the educational background of parents also has a significant effect on consumer behaviour, especially the educational

⁴ The statements of GWI are slightly shadowed by Shein application, which is gaining a dynamically increasing popularity among youngsters worldwide. In the first months of 2021, Shein application was the second most downloaded app after Amazon. The rates of likes and references related to the brand exceeded all the rival brands' on Tik-Tok, which is the most favoured and used site by youths (Financial Times, 2021). The enterprise has become the synonym of Tik-Tok for the consumers of Gen Z, popular influencers post short clips from "Shein hauls", where they show some cheaply bought clothes for their followers. As a matter of fact, Shein is particularly inexpensive, more than 600.000 items cost less than 7,9 USD; typically, T-shirts cost merely 2 USD. Due to this fact, Shein's trade turnover is almost the same as Inditex's (Zara's) an H&M's. With 24 million active users, Shein is the 1st on the list of iOS apps in 50 countries. The app is easy to use, and it is aggressive enough to make people to check it at least once a day. According to the report of UN, after energy supply, the fashion industry is the most polluting industry in the world. Annually, it uses 93 billion cubic metres of water, which amount is roughly the water supply of 5 million people per year. For manufacturing a single T-shirt, 3000 litres of water are needed, and 9000 litres for one pair of jeans. The industry is responsible for 10% of total carbon-dioxide emission. Shein targeting the youngest customers with its attractive app has become one of the most powerful participants of the fast fashion industry, which has nothing to do with a sustainable economy.

According to the data of Statista (2020a), in 2020, the most popular activity of internet users is the use of diverse chat programmes followed by the consumption of different audio-visual contents (films and videos), the third one is online shopping. The most popular online platform among Hungarian customers is eBay, Ali Express and Wish (Statista, 2020b) and Shein by 2021 (Statista, 2021).

⁵ The interviewee valued on a 4-element grading scale where 1= not pay attention at all, 4= pay attention very much

⁶ The intern consistency of the index is very good; the value of Cronbach Alpha is 0,817.

⁷ Significance level of F probe $p < 0,001$, Pearson correlation= ,052.

⁸ Significance level of F probe $p < 0,001$, Pearson correlation= ,110.

⁹ Significance level of F probe, $p < 0,001$, Pearson correlation= ,218.

background of the father¹⁰ is determining while the mother's education¹¹ is not that important. Youths living in the capital¹² pay particular attention to the abovementioned aspects during shopping, followed by their peers living in villages. Finally, eco-friendly shopping is determined mainly by personal financial situation¹³, as those who are more well-to-do have 11,8 points on the index. In comparison, those who experience financial difficulties and are in need have 6,6 points.

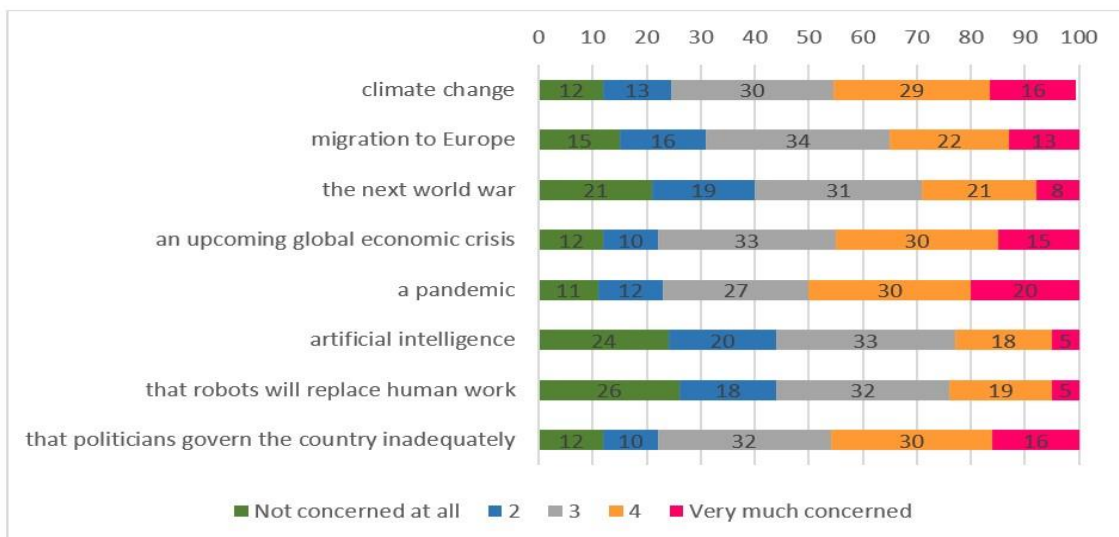
The most eco-conscious customers belong to the age group 25-29; they are well-educated youngsters living in Budapest whose parents also have a degree, are financially secure, and either study or work. Due to their socio-economic status, these youths can take those steps that do not require much individual effort but mean a lot to the community itself. However, eco-friendly shopping involves extra costs, and fewer well-to-do people cannot afford it.

Worries and fears

All waves of considerable data on youth research consisted of questions examining youngsters' problem recognition, revealing the factors youths were concerned about. Objective existential problems (unemployment, financial problems, housing problems) are of changing significance, while subjective existential instability (aimlessness, lack of prospects) indicates a more significant problem (anonim, 2018: 324).

The sixth wave of youth research revealed those factors which make youngsters feel worried or scared the most (Chart 1). As the main peculiarity of the year 2020 was the Coronavirus pandemic, Hungarian youngsters are primarily concerned about it; every second youngster is very or somewhat afraid of it. It is followed by concern about the incompetency of the government (46% are very much concerned or somewhat concerned) and climate change (45% are very much concerned or somewhat concerned), and fears for an impending global economic crisis (45% is very much concerned or somewhat concerned).

Chart 1. "How much are you concerned about?" N2020=2000



It is worth comparing the results with the data of an international survey conducted by Deloitte (2020) in spring¹⁴ 2020. The participants consider that the most burning issue is health care and epidemic/disease prevention, followed by global climate change, which precedes unemployment, the problem of economic growth and income inequalities. The questionnaire of Hungarian Youth Research

¹⁰ Significance level of F probe $p < 0,001$, Pearson correlation = ,223.

¹¹ Significance level of F probe $p < 0,001$, Pearson correlation = ,187.

¹² Significance level of F probe $p < 0,001$, Pearson correlation = -,083.

¹³ Significance level of F probe $p < 0,001$, Pearson correlation = -,234.

¹⁴ International data collection between 28.04.2020 and 17.05.2020 with 5501 participants belonging to Gen Y and 3601 participants belonging to Gen Z.

attempted to reveal those factors¹⁵ which influence Hungarian youngsters' world-views the most in the autumn of 2020. The coronavirus epidemic (mean value 3.3) and climate change (mean value 3.1) have the most influential Impact, as almost half of the participants consider (48%) that these two factors influence their world-views very much or instead influence them.

The interest in social and public life-related issues significantly affects global thinking¹⁶. The more sensitive a youth is to public life-related issues, the more determining role environmental protection and global health risks have in his/her way of thinking or in his/her problem recognition.

Who will be Captain Planet?

The activities mentioned in the first two questions are related to the planet's relief. First is the question: who will lead the fight against climate change, and who will be Captain Planet? A climate-conscious attitude characterizes young Generation Z, also called Generation Greta, or older Generation Y, which is considered a stable column of consumer society. For evaluating cognitive and behavioural dimensions of attitude towards climate protection, we created an index¹⁷ from the variables listed above¹⁸. The maximum value of the index is 44 points; eight-tenths of the participants belong to the upper third of the index (between 30-44 points). As the high mean values mentioned above may also indicate, they are committed to climate protection.

As a result of the analysis of variance, it can be stated that age influences attitudes and acts towards environmental protection¹⁹.

The older the interviewee is, the more committed he/she is to environmental protection, theoretically and practically, in his/her individual acts. The most noticeable difference is perceived between the youngest (mean value on the index: 34,8) and the oldest people (mean value on the index: 36,1). Similarly to age, level of education²⁰ is also an influential factor: the higher level of education the youth has, the higher points he/she has on the index. The Impact of gender is significant²¹ as women have higher points on the index than men (women: 36,1, men: 35 points); however, this explanation is weak. Type of settlement does not mean a significant difference.²² However, the region does:²³ youths living in the Southern Great Plain (37 points) have the highest points, youngsters living in Southern Transdanubia have the lowest (33,4 points).

Those inactive have lower points on the index than students or working youths. Also, the parent's level of education²⁴ is an influential factor, especially the mother's level of education.²⁵ The more educated the parents are, the more eco-conscious attitude and behavioural orientation the child has.

The most significant discrepancy is between children whose parents have only elementary graduation and children whose parents have a degree, on average, 4 points on the index. Besides the mother's level of education, the second most influential factor is the youngster's financial situation²⁶. Those who live under poor financial circumstances have 8 points less on the index (on average, 28,6 points) than

¹⁵ In the questionnaire the possible factors are climate change, migration to Europe, coronavirus epidemic, Me Too movement, Black Lives Matter (BLM) movement. The interviewee valued on a 5-element grading scale where 1= not influence at all, 5=influences very much.

¹⁶ $p < 0,001$, Pearson correlation= ,165.

¹⁷ Questions with two item lines consists of 11 items, and the participant has to value the importance of the diverse items on a 4-element grading scale. Consequently, the lowest value of the item is 11, the highest is 44.

¹⁸ The intern consistency of the index is high; the value of Crombach Alpha is 0,904.

¹⁹ The condition of homogenous variances is fulfilled (Levene's test=0,191). Significance level of F probe $p < 0,001$, Pearson correlation=,092.

²⁰ Significance level of F probe $p < 0,001$, Pearson correlation= ,154.

²¹ Significance level of F probe $p < 0,001$, Pearson correlation= ,093.

²² Significance level of F probe $p < 0,423$, Pearson correlation= ,103.

²³ Significance level of F probe $p < 0,001$.

²⁴ Impact of father's educational level: Significance level of F probe $p < 0,001$, Pearson correlation= ,124.

²⁵ Impact of mother's educational level: Significance level of F probe $p < 0,001$, Pearson correlation= ,194.

²⁶ Significance level of F probe $p < 0,001$, Pearson correlation= - ,168.

members of the two upper groups ("those who are living without problems or burdens" 36,4 points, and "those who are able to make ends meet due to their money management" 36,1 points).

Consequently, Captain Planet does not belong to climate-fighter Generation Z but to youngsters aged 25-29 who are highly educated, who have a stable financial situation, who are not inactive; that is, they either study or work (one-third of youngsters belong to this group (32%)). It may be commonplace; however, it was managed to prove this commonplace scientifically.

References

- Deloitte (2020). The Deloitte Global Millennial Survey 2020. <https://www2.deloitte.com/gr/en/pages/about-deloitte/articles/MillennialSurvey2020.html> (last access: 16. 03. 2022.)
- Jonathan, Eley & Eleanor, Olcott (2018). Shein: the Chinese company storming the world of fast fashion <https://www.ft.com/content/ed0c9a35-7616-4b02-ac59-aac0ac154324> (last access: 16. 03. 2022.) Financial Times
- Fridays For Future (2019). <https://fridaysforfuture.hu/> (last access: 16. 03. 2022.)
- Elemér, Hankiss (1979). *Társadalmi csapdák*. Magvető, Budapest.
- Global Web Index (2021). *Global trends among Generation Z*. <https://www.gwi.com/reports/global-trends-among-gen-z> (last access: 16. 03. 2022.)
- Intergovernmental Panel on Climate Change (2018). *Global Warming of 1.5 °C* <https://www.ipcc.ch/> (last access: 16. 03. 2022.)
- Statista (2020a). *Most common online activities in Hungary in 2020, by gender*. <https://www.statista.com/statistics/1192958/hungary-common-online-activities-by-gender/> (last access: 16. 03. 2022.)
- Statista (2020b): *Most popular online shops for cross-border purchases in Hungary in 2020* <https://www.statista.com/statistics/1104104/hungary-most-popular-foreign-online-shops/> (last access: 16. 03. 2022.)
- Statista (2021): *Most popular free shopping mobile applications in Hungary in May 2021, by number of downloads* <https://www.statista.com/statistics/1237189/hungary-most-downloaded-free-shopping-apps/> (last access: 16. 03. 2022.)
- Wikipedia: https://en.wikipedia.org/wiki/Captain_Planet_and_the_Planeteers (last access: 16. 03. 2022.).

Moet Moet Myint LAY

Quality teacher education: a review of professional learning community

Introduction

The role of education in society is often at the center of the debate over what constitutes quality education. One important function of education is that it is viewed as essential to concepts of human development on a global scale. For instance, since the 1990 launch of the United Nations Human Development Report series, education has served as an indicator for determining levels of human development (United Nations Development Programme 1990).

According to Kuhn, the paradigm is necessary for scientific research because "no natural history can be interpreted in the absence of at least some implicit body of interconnected theoretical and methodological the idea that permits selection, evaluation, and criticism, that permits selection, evaluation, and critique." A shift in professional commitment to shared assumptions occurs when the fundamentals of current scientific practice diverge. Kuhn refers to these events as scientific revolutions because "the tradition-shattering complements the tradition-bound work of normal science." The reconstruction of earlier assumptions and the reevaluation of earlier facts are necessary for "new assumptions", or "paradigms" (Kalman, 2016).

Regarding the professional development of teachers, a paradigm change has been gaining momentum during the past 20 years. This reform expands professional development beyond merely assisting teachers' acquisition of new information and abilities, driven by the complexity of teaching and learning in an environment of rising accountability. According to Darling-Hammond and McLaughlin (1995), the nation's reform program needs most teachers to reconsider their practice, establish new classroom roles and expectations concerning student outcomes, and teach in ways they have never taught before (Darling Hammond, 1995).

Little (1982) also discovered that planning, developing, conducting, analyzing, assessing, and experimenting with the business of teaching were the collegiality norms (faculty working together) that were most effective in fostering professional progress. Teachers are more willing to participate in professional development when they recognize that their colleagues have something new to contribute and that doing so would help them advance their careers (Little, 1982).

In 2009, EU education ministers announced the EU strategy 2020 to link education and business to the European Year of Creativity and Innovation, with a focus on quality assurance and development for teachers under European policy (Halasz, 2013). The main component of the Lifelong learning policy is value learning (such as creating a learning community and facilitating access to learning opportunities), information, guidance, and counseling (such as creating a learning culture and partnership working), investing the time and money in learning, promoting the learners and learning opportunities, and basic skills and innovative pedagogy (European Communities, 2008). Several authors have emphasized the significance of the process of self-directed learning. Self-management, self-monitoring, and self-reflection allow both students and teachers to have a more comprehensive understanding of what needs to be changed and improved in their methods and conduct. The approach is based on the notion that reflective learning methods are crucial for lifelong learners (Kalman and Citterio, 2020).

The teacher community includes improving the quality of teachers for analyzing and designing management at the macro, meso, and micro levels. Most of the schools needed continuous professional development (CPD) programs that offered individual teachers through knowledge-sharing communities or school networks or support incentives. Schools can be encouraged to improve the behavior of the teacher and the student learning outcomes which makes a professional identity, and a professional learning environment (European Commission, 2015).

Literature Review

According to Hord (2009), a professional learning community is defined in words.

Professionals: Those who are reliable and accountable for providing students with a successful educational program so that they can all learn successfully. Professionals share responsibility for this goal and come prepared with a fierce commitment to both their own and the student's learning.

Learning: an activity in which professionals can immerse themselves to Improve their knowledge and skills.

Community: A community is made up of people who get together in a group to engage in serious conversations with one another about a particular subject, create a sense of shared purpose, and establish shared meaning.

Professional learning communities are created by combining the ideas of professional learning and community. A PLC is described as a group of educators that collaborate continuously to share, research, and reflect on their professional practice to promote student learning and school improvement (Hord, 1997; Stoll et al., 2006).

A professional learning community (PLC) is a group of educators that critically examine and evaluate their teaching practices through reflection and collaboration. It also has to be focused on student learning. Teachers who actively participate in PLCs will improve their professional knowledge by improving the quality of student learning (Toole & Louis, 2002).

Table 1. Effective Dimensions of Professional Learning Community (PLCs)

1997	1998	2003	2020	2021
Hord (1997) described as PLCs: (1) Shared values & vision (2) Supportive & Shared leadership (3) Collective Creativity (4) Shared personal practice (5) Supportive conditions	Dufour and Eaker (1998) classified as: (1) Shared Mission Vision, Value & Goals (2) Collective Inquiry (3) Collaborative Culture (4) Action Orientation (5) Commitment to Continuous Improvement (6) Results Orientation Other perspectives of Wenger (1998): (1) Shared repertoire (2) Mutual engagement (3) Joint enterprise	Huffman and Hipp (2003) defined as: (1) Shared Values and Vision (2) Shared and Supportive Leadership (3) Collective Learning and Application (4) Shared Personal Practice (5) Supportive Conditions	Meeuwen, et al. (2020) stated as: (1) Lessons/teaching practice (2) Communities of Practice (COPs) (3) Collective learning (4) Professional orientation	Tai and Omar (2018) explained as: (1) Shared Norms and Vision (2) Principals' Commitment & Support (3) Structural Support (4) Collegial Understanding & Trust (5) Collaborative Learning (6) Reflective Dialog (7) Collective inquiry (8) External Support System.

Method

This article is of the systematic review type, intending to explore the importance of professional learning communities for the professional development of teacher education. It is also aimed to provide a comprehensive perspective on the importance of a professional learning community.

These include PRISMA, resources, the process of systematic review, as well as data abstraction and analysis that were adopted in the present study.

Search strategy

A manual for writing this systematic literature review is PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) (SLR). This approach is a guideline for a qualitative assessment of the literature because it is a labor-intensive and detailed process that involves a lot of data. PRISMA's strength is its capacity to generate qualitative research reports using specific procedures that exhibit transparency, consistency, and high-standard components (Flemming et al., 2019). Researchers can create publications for analysis on websites like Scopus, Google Scholar, ERIC, Springer Link, Academia and Science Direct, but each of these articles must first pass through a screening process. All of the chosen articles are then thoroughly read after that. The author's name, the article's title, the publication date, the objectives, the research methodology, the findings, and the conclusions are all systematically noted. The next section then discusses details information on the study of papers.

Inclusion criteria for selecting the articles

The literature collected from the search process must go through several screening and categorization processes. Screening is a process that defines inclusion and exclusion criteria that the author can use to select articles or references that fit the SLR to be formed. The study inclusion criteria for systematic reviews are shown in Table 2.

Table 2. The inclusion criteria of the study

Criterion	Criteria
Timeline	2018-2022
Language	English
Study scope	-Concepts of professional learning community -Dimensions or Characteristics of professional learning community
Type of Literature	Journal (research articles)

Source: Adapted from Pandian et al. (2022)

Identification of the study

The four primary stages of the systematic review procedure went into selecting the linked articles for this study. The main terms "Concepts of professional learning community", and "dimensions of professional learning community" or "characteristics of professional learning community" were used to filter out articles that were relevant to the study. A total of 839 papers were collected from the systematic review process's initial phase.

Screening

During the initial screening phase, duplicate items were removed. Therefore, 639 papers were screened in the second phase using investigator-specified inclusion and exclusion criteria, as opposed to 600 articles that were excluded in the first phase. The researchers' decision to concentrate solely on the journal's research papers, which serve as the primary source of empirical data, was the first criterion.

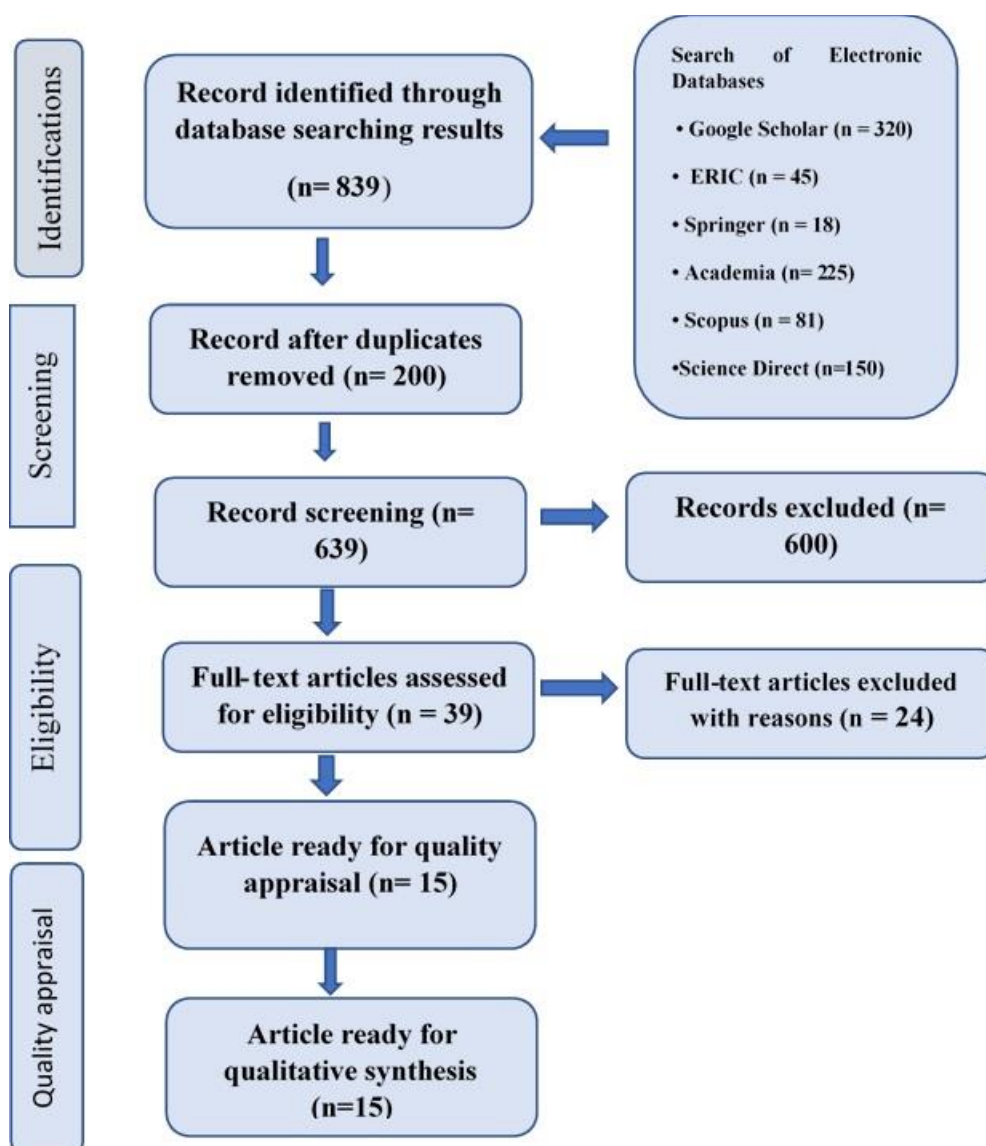
The next stage of screening involved reviewing the titles to exclude papers that did not meet inclusion criteria, book series, books, book chapters, and reports that were related to engineering or medical

papers, such as topic relevance. For example, title such as “Design conversations and informal chats: ‘situated’ professional development, learning community, and casual tutors in undergraduate architectural design education.”

Eligibility

The next process is to conduct eligibility on the remaining 39 articles selected from the screening process earlier. An amount of 24 articles were omitted as the emphasis was not on the concepts of professional learning community or dimensions. Finally, 15 articles were selected to proceed to the quality assessment stage of the procedure based on this process. The review is based on a total of 15 journal articles published between 2018 and 2022 that satisfied the inclusion requirements (see Figure 1). A preset data extraction form was used to extract the data. Each paper's completed form included information about the author, year, country, research focus, research design, methodology, participants, and major findings. This method gave confidence that enough precise data was extracted.

Figure 1. PRISMA Flow Diagram



Source: Adapted from Hayrol et al. (2019)

Findings

Table 3. Details information on the study of papers

Author, year	Country	Study focus	Research design and methodology	Participants
Oppi, P., & Eisenschmidt, E. (2022)	Estonia	Professional learning community through teacher leaders	Case study and twice interviews (January–February 2021 and in December 2021–January 2022).	Three teacher leaders and three participating teachers (Estonian school).
Amanda Scull(2021)	USA	Creating community, learning together for staff professional development.	Quantitative Survey.	15 staff members.
Brown, C., & Flood, J. (2020)	England	Roles of school leaders in maximizing the impact of Professional Learning Networks.	Case study and interviews.	Senior Leader(n=13) and Opinion Former(n=8), Total (n=21) from 8 primary schools situated in the New Forest area of England.
Antinluoma, M., Ilomäki, L., Lahti-Nuuttila, P., & Toom, A. (2018)	Finland	Building professional learning communities for improvement of teachers' professionalism.	Quantitative study.	8 principals, 11 assistant principals, 122 class teachers, 78 subject teachers, (total of 212).
Meeuwen, P. V., Huijboom, F., Rusman, E., Vermeulen, M., & Imants, J. (2020)	Netherlands	Teachers' professional development focuses increasingly on professional learning communities (PLCs).	Literature review and Qualitative study of interviews.	12 semi-structured interviews (school leaders =5, advisors =2, researchers=2, inspectors =2, policy advisor=1).
Admiraal, W., Schenke, W., De Jong, L., Emmelot, Y., & Sligte, H. (2021)	Netherlands	School as professional learning communities to support professional development of teachers.	Focus groups interviews.	14 secondary schools during three school years (School year 1 (2014–15), School year 2 (2015–16), and School year 3 (2016–17) No of teachers =2615, No of students=20605.
Belay, S., Melese, S., & Seifu, A. (2022)	Ethiopia	Elevating collaborative professional learning	Quantitative Survey	379 teachers randomly selected from Awi district

		provides the teacher with individualized professional learning, and job satisfaction in their professional capital development.		primary schools, Ethiopia.
King, F., & Holland, E. (2022)	Ireland	Professional learning model support leadership learning and growth of early career teachers.	Qualitative study and literature review. Data was collected from e-technology interaction, audio-visual workshop recording, and artifact generation and collection such as upload TSAPs, Talking Heads videos, and other reflective processes and activities.	Seven early career teachers interview. The data which were gathered from teachers' participation during and between the first eight "Leadership for Inclusion" CoP [LIn-CoP] workshops of the study (between November 2017 and April 2021).
Yeol, L. S. (2020)	South Korea	Analysis of the Effect of School Organizational Culture and Professional Learning Communities on Teacher Efficacy.	Survey Descriptive statistics (T-test the F-test and Scheffe test).	400 teachers (in-service teachers) were surveyed from a total of 15 schools located in Daejeon, Chungnam, and Gyeonggi (5 schools from each region).
Saydam, D. (2019)	Turkey	Teachers' beliefs on the impact of Professional Learning community.	A qualitative exploratory case study.	Semi-structured individual interviews of the selected English language teachers (n=4) at public university in Turkey.
Johannesson, P. (2020)	Sweden	Development of professional learning communities through understanding professional learning in practice.	A case study of an upper secondary school in Sweden.	18 teachers interviewed in the learning groups in the school.
Vella, R., & Azzopardi, J. A. (2021)	Malta	Effective Continuing Professional Learning and Development of the teachers.	Mixed method approach The quantitative data collected,	360 mathematics teachers form the state and non-state schools at all secondary school

			<p>the research literature, and the qualitative data were examined and cross-referenced.</p> <p>The quantitative study used descriptive statistics (the Chi-Square test and the Friedman test) and IBM SPSS Statistics 25 software.</p>	<p>sectors in Malta and Gozo. (261 teachers in 21 Church, 3 Independent and 22 State middle and secondary schools).</p>
Brown, B. D., Horn, R. S., & King, G. (2018)	USA	The Effective Implementation of Professional Learning Communities.	Literature review (Positive school reform).	Previous STEM research (PLCs, project-based learning, sustained professional development, and K-12 the partnership was implemented by a team of researchers from Texas A&M University (2016).
Antinluoma, M., Ilomäki, L., & Toom, A. (2021)	Finland	Practices of Professional Learning Communities.	Qualitative multiple-case study.	<p>School A: one municipal primary school with classes 1–6,</p> <p>School B: one municipal primary school with classes 1–5,</p> <p>School C: one municipal primary school with classes 1 and 2, and</p> <p>School D: one private comprehensive school with classes 1–9 (primary school section with classes 1–6 and secondary section with classes 7–9)</p>

				Interviews purposive sampling -12 individuals (four principals and eight teachers).
Jafar, M. F., Yaakob, M. F. M., Awang, H., Zain, F. M., & Kasim, M. (2022)	Malaysia	Professional Learning Community (PLC) improves teachers' effectiveness by reconnecting Educational Policy with School Culture.	A cross-sectional survey method (a correlational design).	612 teachers using Professional Learning Community Assessment (PLC-A) (Olivier, Hipp & Huffman, 2010).

Table 4. Outcomes of each review paper studies

Author, year	Findings	Comments
Oppi, P., & Eisenschmidt, E. (2022)	Teachers invested a lot of time in learning the theory, and based on their shared comprehension, they created a model to assist students in defining goals. The teacher leaders acknowledged that running the PLC could be challenging at times, but they decided to carry on the following year, nevertheless. However, teacher leaders' self-initiative was insufficient to guarantee the PLC's effective implementations. The viability of the PLC was hampered by the school leadership team's lack of interest and support (for example, previously designated time for collaboration was eliminated).	This case study shows that the viability of a PLC requires the interest and support of the school leadership team. If there is no support from the school leadership, the PLC could be challenging.
Amanda Scull (2021)	Conferences, webinars, online courses and peer discussion are all excellent options for one-time professional development in the library community. These are priceless and significant opportunities that should be promoted to staff members. It has been demonstrated to be a great method to create a culture of learning, sharing, and professional development to design and implement a systematic program of staff development that combines the knowledge of all staff, promotes social learning as a group, and adopts a variety of learning styles.	It is clear that building a learning community, and learning together, among other things, can significantly support an employee's professional skill development.
Brown, C., & Flood, J. (2020)	The first-order variables that the school leaders focused on were formalizing RLN involvement by including it in the school improvement plan, involving governors to track progress and provide funding (for teacher release, for example), and	School administrators must use best practices in these fields after deciding whether mobilization should be accomplished through the development of a PLC or

	<p>integrating the process into teachers' performance management goals. Such instructional leadership acts were crucial in affecting the factors that can directly affect the effectiveness of instruction and the learning of students. The implementation of an intra-school PLC by School N ensured the development of a whole-school collaborative approach. The interaction between the intra-school PLC and the RLN reflected the coordination of professional learning model effects that created significant ties between the network and the school.</p>	<p>through a more general brokerage in order to make sure mobilization happens as successfully as possible. The role of school leaders is critical in maximizing the impact of Professional Learning Networks. The importance of supportive & shared leadership can be seen as described in Hord's (1997) professional learning community model.</p>
<p>Antinluoma, M., Ilomäki, L., Lahti-Nuuttila, P., & Toom, A. (2018)</p>	<p>According to the participants' perceptions, all schools have a culture of cooperation, commitment, and trust. Teachers could collaborate professionally because the school cultures encouraged it and because they had the necessary knowledge, abilities, and attitudes. The difficulties were brought on by structural issues, particularly the lack of collaborative time. In the cluster analysis, three school profiles that may be considered professional learning communities from the perspective of maturity were found. Organizational and operational characteristics were found to differ between the three clusters statistically significantly.</p>	<p>To further our understanding of PLCs, as proposed by Hord et al. (1999), research that combines qualitative data with case studies of effective PLCs and successful progressions linked to enhanced learning outcomes is required. To better comprehend the PLC idea, the relationships between the dimensions, and the roles played by the students, more research is also required. The further understand how schools evolve into PLCs, more extensive long-term follow-up research should be conducted.</p>
<p>Meeuwen, P. V., Huijboom, F., Rusman, E., Vermeulen, M., & Imants, J. (2020)</p>	<p>An extensive variety of visible PLC characteristics and a wide range of external influencing factors were revealed by the literature review and the interviews. According to expert interviews, the framework didn't appear to be missing any critical components, and a lack of framework viewpoints was mentioned. The PLCs framework was confirmed by the recent literature. The authors concluded that the created PLC concept is sufficiently thorough and workable for performing PLC research. This study explored PLC characteristics:</p> <ol style="list-style-type: none"> (1) Collaboration (2) Reflection (3) Giving and receiving feedback (4) Experimenting (5) Mutual trust and respect (6) Collegial support (7) Social cohesion 	<p>The framework can be used to discuss how the various PLC characteristics are coming along or to identify obstacles to professional development. In conclusion, the conceptual framework can help ensure that PLC in schools is implemented and maintained over time.</p>

	(8) Shared vision (9) Shared responsibility (10) Shared focus on student learning (11) Shared focus on continuous teacher learning.	
Admiraal, W., Schenke, W., De Jong, L., Emmelot, Y., & Sligte, H. (2021)	<p>The activities in five groups can be used to describe the interventions 14 secondary schools implemented to create, support, and further develop as PLC: 1) Shared school vision on learning; 2) Professional learning opportunities for all staff; 3) Collaborative work and learning; 4) Change of school organization, and 5) Learning leadership. Interventions focused on team leaders, school principals, and teacher leaders were comparatively uncommon. The interventions that focused on Collaborative work and learning and Professional learning opportunities were the most commonly acknowledged.</p> <p>The structural integration of teacher groups into the structure of the school was valued for its connection between work and learning.</p> <p>In general, the authors drew the conclusion that an intervention's impact is more long-lasting and helps move schools toward a culture of professional learning and collaboration the more deeply it is ingrained in the structure and culture of the institution.</p>	<p>These school interventions were organized around the idea of the school as a professional learning community. Opportunities for professional development and collaborative work and learning, including formal and informal teacher groups working and learning together, were the ones most frequently highlighted.</p> <p>The authors concluded that shifting schools toward a culture of professional learning community and collaboration improve teacher learning and development.</p>
Belay, S., Melese, S., & Seifu, A. (2022)	<p>Based on predetermined criteria, the measurement model and structural model displayed a satisfactory fit. The results demonstrated a substantial relationship between teachers' job happiness, participation in individualized and collaborative learning, and their professional capital development. These independent variables explained 68.3% of the variation in professional development, leaving 31.7% of the variation unexplained. The study's result emphasized the significance of teacher-level collaboration in boosting professional capital in the teaching field.</p>	<p>Collaborative work among teachers for learning and exchanging professional learning and job satisfaction may be a particularly effective and practical professional development. Collective learning is seen as the key factor to professional development and building a professional learning community.</p>
King, F., & Holland, E. (2022)	<p>This development is not linear, but rather iterative and recursive, primarily focused on personal progress, supported by collaborative contacts and discourse. It gives specific examples of advancement in various areas and confirms this. To</p>	<p>In using the framework within PLCs, schools need teacher leadership development. Poekert et al.'s (2016) framework, empirical findings support potential leadership</p>

	<p>support teacher personal growth trajectories while also realizing that this growth is influenced by teachers' personal and contextual problems, needs, and desires, this study highlights the range of evolving interactions between growth components and between growth results. The lack of research on teacher leadership and professional learning approaches to support teacher leadership is addressed in this paper as a first step.</p>	<p>learning within a school-university partnership model. Finally, this paper is considering professional learning for teacher leadership development. It was crucial to adopt a proper model of professional learning to support this given the emphasis on feedback loops and interactions as necessary for progress as a researcher, teacher, leader, and personal growth.</p>
Yeol, L. S. (2020)	<p>The organizational culture of a school is first changing and developing into a more ideal and model culture. Inventive cultures and group cultures are forming as schools get more and more innovative. Second, a school is a form of organizational structure that stimulates different responses from instructors based on their individual backgrounds and traits. Third, teacher efficacy is enhanced by professional learning communities. This study stated that school organizational culture rather than a professional learning community can be used to predict teachers' effectiveness.</p>	<p>The professional learning community becomes more active, particularly when inventive and group culture are employed, and when these factors are combined, the teacher's efficacy rises. In this situation, it is essential to develop an organizational culture within the school and to place a strong emphasis on the professional learning community as a driver of change. It is important to note that professional learning communities operate better jointly than school organizational culture alone to promote teacher efficacy.</p>
Saydam, D. (2019)	<p>The results of an exploratory case study conducted with four English language teachers at a public university in Turkey are revealed after a thematic review of studies on the acquisition of professional knowledge, the scope of professional knowledge, beliefs on professional learning experiences, and the impact of learning experiences on classroom practice. The findings highlight the environments in which teachers learn, the kinds of learning experiences they had in their early and more recent years of practice, views about teacher learning, and how that learning impacts practice.</p>	<p>Additionally, the current study does not look at the difficulties instructors encounter while pursuing professional growth or the causes of those difficulties. This may enhance instructors' opportunities for professional learning and encourage those who might not otherwise participate in professional development events. Teachers believe that teaching and learning will improve by engaging teachers in professional learning activities and experiences. Therefore, teachers need a community that can create</p>

		teaching and learning opportunities for teachers' professional development.
Johannesson, P. (2020)	<p>According to studies, teachers who participate in action research build a common repertoire of skills that is relevant to both local requirements and the field and traditions of action research. The repertoire also makes it easier for teachers to work together. Mutual engagement in the learning groups is, however, impacted by varying interpretations of the project. This shows that a lack of congruence between local practice and action research practice affects group dynamics and could barriers the growth of a PLC.</p> <p>It is feasible to define and make visible the professional learning community in practice, including the repertory that teachers acquire, how they collaborate on works, and the objectives they strive towards, by employing theoretical notions (as in this example).</p>	<p>Thus, educational researchers and educators need to support the teacher-learning community to achieve their goals rather than adopting an action research strategy that dictates scientific validity. Supporting schools will bring them closer to being effective teacher-learning communities.</p>
Vella, R., & Azzopardi, J. A. (2021)	<p>All of the teachers who participated in the study's survey said they valued professional development and saw it as essential to their ability to do their jobs well. Teachers believe that professional development (PD) gives them the chance to continuously learn new information and to improve their abilities and pedagogical methods.</p> <p>According to the research's findings, PD activities for math teachers are most successful when they extend beyond a single meeting or session. Several teachers (60.6%, 58.3%, and 58.2%, respectively) believe that school-organized sessions, consultation meetings, and professional learning communities offered by MEDE have a moderate to high impact on their professional development. Attending seminars designed exclusively for math teachers is also seen favorably (79.6%).</p> <p>According to research, teachers are inspired to participate in professional development when their needs are taken into account, their knowledge is recognized, and their classroom practices and initiatives are incorporated into the professional learning experience.</p>	<p>According to this study, school-level collaboration is very advantageous for teachers because it fosters greater teacher engagement and communication as well as chances for assistance among instructors. This study illustrated the power of teachers' research and collaboration practices to generate new concepts and methods. This study aims to summarize the opportunities of a good learning environment for the current professional development of mathematics teachers in Malta, based on teachers' self-perceptions, a subject in great need of research in the region.</p>

Brown, B. D., Horn, R. S., & King, G. (2018)	The implementation of grade-level professional learning communities and the support provided to teachers in the four elementary schools were surveyed. Qualitative and survey data showed that principals influenced what teachers in PLCs do and how successfully they carry out those undertakings (Buttram & Farley-Ripple, 2016). As a result, Buttram and Farley-Ripple (2016) contributed to the understanding of the significance of the role of principals in embracing reform efforts like professional learning communities and successfully implementing them in their schools.	According to this study, Professional learning communities (PLCs) have improved education in recent years, from elementary school through college, with numerous positive effects. PLCs give teachers a setting that promotes innovation, cooperation, and professional growth.
Antinluoma, M., Ilomäki, L., & Toom, A. (2021)	The outcomes demonstrated that principals were primarily responsible for the development of schools into PLCs. Principals were characterized as inspiring figures of leadership who had sparked forward motion, distributed leadership, and fostered a sense of devotion to shared objectives. The outcomes also showed that a change in leadership could be beneficial. The goal of the collaborative, democratic, participatory, and inclusive decision-making processes was to reach a satisfactory level of consensus. Staff employees were reportedly free to voice their thoughts and relationships expressed mutual trust and transparency. Co-teaching, peer support, encouragement, and shared student responsibility were all used. One kind of collaborative work-embedded professional learning that is related to the fundamental ideas of professional learning communities has been identified as co-teaching practices. It was reported that structural issues were obstacles to schools becoming PLCs.	Prior PLC research established capabilities that enable us to assess the school's PLC procedures. These findings showed that the interpersonal and organizational capacities of the participating schools' PLCs were reflected in their practices, but the study also highlights certain common and contextual obstacles within these capacities, such as resources and value clarity. The COVID-19 pandemic is currently having a severe impact on PLCs and schools around the globe. The scenario is testing PLC leadership, structures, teamwork, PLD, culture, and climate of PLCs.
Jafar, M. F., Yaakob, M. F. M., Awang, H., Zain, F. M., & Kasim, M. (2022)	One of the important factors that lead to PLC is sharing the planning element. Because it may give the PLC group members the best opportunity to share their lesson plans from the beginning of their induction set to the finish, the authors think that the sharing planning component will wind up being the most important one. The group members can work together to assess and determine the teaching plan's advantages and disadvantages. Based on the feedback	The PLC benefits from school culture, as evidenced by sharing planning and change leadership. This study adds something new to the body of knowledge by helping researchers identify the most important and influential aspects influencing teachers' PLC practices.

	<p>they receive from the sharing process during PLC meetings, the teachers may make adjustments to and enhance their teaching methods and assessment in order to attain the desired learning results. The authors conclude from the findings that most teachers understand the idea of sharing planning. They might cooperate as a team to accomplish their organizational purpose. According to these findings, the second component that greatly contributes to the success of PLC among teachers is transformational leadership. Since PLC has been included in Malaysia's educational policies, it is imperative to reconnect educational policy to school culture. By taking part in school-supportive educational policies, teachers can contribute their skills and knowledge outside of the classroom.</p>	
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Conclusions and Discussion

Concepts of professional learning community

DuFour (1998, 2004) discovered collective learning as a continuous process that promotes teacher professional development, student learning, and problem-solving in school. Studies show that the professional learning community helps teachers to develop subject-matter expertise, increase their knowledge, learn to collaborate, and enhance and improve student academic achievement and school quality (Admiraal et al., 2021, Belay et al., 2022, Yeol, L. S. (2020), Antinluoma et al., 2018, Johannesson, P. 2020). While many factors contribute to professional development, it is obvious that creating a learning community and learning together can greatly enhance the teacher's professional development (Amanda Scull, 2021). Moreover, a better understanding of the PLC concept can show successful developments linked to better learning outcomes due to effective PLC (Antinluoma et al., 2018). In order to exchange resources, learn from others who are encountering similar or dissimilar issues, and form strong networks with other teachers and schools, it is essential for individual schools to adopt the concepts of PLCs. Learning from colleagues is a cost-effective way to achieve continuous professional development. Sharing best practices let people learn from others' experience and gain insight into other viewpoints on the same situation. In this regard, evidence has shown the importance of establishing a professional learning community within the school as a foundation for the teacher's professional development or teacher efficacy.

Dimensions or Characteristics of professional learning community

Although the dimensions vary from one to another, the core dimensions of PLCs are (i) shared and supportive leadership, (ii) shared values and vision, (iii) collective learning and application, (iv) shared personal practice, (v) supportive conditions: relationships and structures (Hord, 1997; Huffman & Hipp, 2003). Amanda Scull (2021) indicated that teachers can enhance their professional development by participating in the collective learning process and professional development activities (e.g conferences, online courses, and peer discussions). Thus, it has made significant contributions to improving teaching practices. School leaders have succeeded in sharing and supportive leadership, creating the collective learning that support learning and professional development. However, school leaders set up the environment to encourage teachers' interactions in order to facilitate or support all these PLC characteristics. (Oppi & Eisenschmidt, 2022, Vella & Azzopardi, 2021, Brown & Flood, (2020), King & Holland, 2022, Saydam, 2019, Jafar et al., 2022).

Meeuwen et al., (2020) explored the main characteristic of PLCs is collaboration, reflection, providing feedback, testing, mutual trust and respect, special support, social unity, share responsibility, sharing a focus on student learning, and sharing a focus on continuous teacher learning. According to literature review, shared personal practice and certain supportive conditions have become an essential part of enhancing the professional learning community that promotes innovation, cooperation, and professional growth during implementation (Antinluoma et al., 2021).

PLC is embedded in Malaysian education policies and there is a need to reconnect education policy with school culture. It has become clear that PLCs can support teachers' skills and knowledge through inclusion in educational policies (Jafar et al., 2022). Therefore, schools come from a variety of backgrounds, and the Ministry of Education must coordinate a specific PLC model in the local context.

PLC process implementation was not a simple task. Support along the way is needed to realize and accomplish the community's goals. Through walkthroughs, formal and informal observation, and other methods, principals need to assist their teachers. In order to follow up and have a record of what the team accomplished during the meetings, school leaders required a meeting agenda and required meeting minutes. They also trained teachers in teaching methodology and instructed them to regularly use this technique in their teacher teams to adjust lesson plans to students' needs. Finally, the literature review shows that teacher leadership and professional learning communities are important for growth as a leader, a researcher, a teacher, and personal growth.

Challenges

PLC research is a continuous endeavor. Conceptual changes may arise from new theoretical understandings or the results of empirical studies. In that regard, it is a dynamic idea rather than a fixed one. The PLC implementation process presented certain difficulties. One is the unwillingness of some teachers to share their knowledge or accept help from their colleagues. The teams' work was impacted by this resistance because of disagreements that made decision-making difficult. However, disconnection from the team makes it more difficult to achieve success and job satisfaction at work.

Therefore, building Professional Learning Communities (PLC) is one of the most well-known methods for improving teacher quality, school improvement, and student achievement.

Limitation

This review has some limitations. First, only documents from 2018 to 2022 were included in the search, which was finished in 2022. For this reason, investigations conducted outside of this time frame were not considered. The second issue is that reporting may not adhere to accepted criteria for high quality, such as transparent and unambiguous reporting. This issue of quality reporting should be the focus of future research. Future research will follow established standards for good quality such as clear, systematic models and transparent reporting.

References

- Admiraal, W., Schenke, W., De Jong, L., Emmelot, Y., & Sligte, H. (2021). Schools as professional learning communities: what can schools do to support professional development of their teachers? *Professional development in education*, 47(4), 684–698.
- Antinluoma, M., Ilomäki, L., & Toom, A. (2021). Practices of professional learning communities. In *Frontiers in education*, 6(617613), 1–14. Frontiers. <https://doi.org/10.3389/feduc.2021.617613>
- Antinluoma, M., Ilomäki, L., Lahti-Nuuttila, P., & Toom, A. (2018). Schools as professional learning communities. *Journal of education and learning*, 7 (5). ISSN 1927-5250 E-ISSN 1927-5269.
- Belay, S., Melese, S., & Seifu, A. (2022). Elevating Teachers' Professional Capital: Effects of Teachers' Engagement in Professional Learning and Job Satisfaction, Awi District, Ethiopia. *SAGE Open*, 12(2), 21582440221094592.

- Brown, B. D., Horn, R. S., & King, G. (2018). The effective implementation of professional learning communities. *Alabama Journal of Educational Leadership*, 5, 53–59.
- Brown, C., & Flood, J. (2020). The three roles of school leaders in maximizing the impact of Professional Learning Networks: A case study from England. *International Journal of Educational Research*, 99, 101516.
- Buttram, J. L., & Farley-Ripple, E. N. (2016). The role of principals in professional learning communities. *Leadership & Policy in Schools*, 15(2), 192–220. doi:10.1080/15700763.2015.1039136
- Darling-Hammond, L., & McLaughlin, M. W. (1995). Policies that support professional development in an era of reform. [electronic version]. *Phi Delta Kappan*, 76(8).
- Dufour, R., & Eaker, R. (1998). *Professional Learning Communities at Work: Best Practices for Enhancing Student Achievement*. Solution Tree; ISBN-13: 978-1879639607
- European Commission. (2015). *Teaching practices in primary and secondary schools in Europe: Insights from large-scale assessments in education* (JCR Report). Luxembourg: Publications Office of the EU.
- European Parliament and Council (2001). Recommendation of the European Parliament and Council on European cooperation in quality evaluation in school education, *Official Journal of the European Communities* (2006/961/EC). Unpublished document.
- European Communities (2008). *The European Qualifications Framework*. ISBN978-92-79-08474-4.
- Flemming, K., Booth, A., Garside, R., Tunçalp, Ö., & Noyes, J. (2019). Qualitative evidence synthesis for complex interventions and guideline development: clarification of the purpose, designs and relevant methods. *BMJ Global Health*, 4(Suppl 1), e000882. <https://doi.org/10.1136/bmjgh-2018-000882>
- Johannesson, P. (2020). Development of professional learning communities through action research: Understanding professional learning in practice. *Educational Action Research*, 30(3)1–16. DOI: 10.1080/09650792.2020.1854100
- Halász, G. (2013). *European Union: The strive for smart, sustainable and inclusive growth. In Education policy reform trends in G20 members* (pp. 267-286). Springer, Berlin, Heidelberg.
- Hayrol Azril Mohamed Shaffril., Asnarulkhadi Abu Samah., Samsul Farid Samsuddin., & Zuraina Ali. (2019). Mirror-mirror on the wall, what climate change adaptation strategies are practiced by the Asian's fishermen of all? *Journal of Cleaner Production*, 232, 104–117.
- Hord, S. (2009). Educators work together toward a shared purpose—improved student learning. *Journal of Staff Development*, 30(1), 40–43.
- Hord, S.M. (.1997). *Professional learning communities: Communities of continuous inquiry and improvement*. Southwest Educational Development Laboratory
- Huffman, J. B., & Hipp, K. K. (2003). *Reculturing schools as professional learning communities*. Rowman & Littlefield.
- Jafar, M. F., Yaakob, M. F. M., Awang, H., Zain, F. M., & Kasim, M. (2022). Disentangling the Toing and Froing of Professional Learning Community Implementation by Reconnecting Educational Policy with School Culture. *International Journal of Instruction*, 15(2), 307– 328.
- Kalman, A. (2016). The meaning and importance of Thomas Kuhn's concept of 'paradigm shift'. How does it apply in Education? *Opus et Educatio*, 3(2).
- Kalman, A., & Citterio, L. (2020). Complexity as new normality: What is going on? *Információs Társadalom: társadalomtudományi folyóirat*, 20(2), 19-32.
- King, F., & Holland, E. (2022). A transformative professional learning meta-model to support leadership learning and growth of early career teachers. *International Journal of Leadership in Education*, 1–25. <https://doi.org/10.1080/13603124.2022.2037021>
- Little, J. (1982). Norms of collegiality and experimentation: Workplace conditions of school success. *American Educational Research Journal*, 19(3), 325.
- Meeuwen, P. V., Huijboom, F., Rusman, E., Vermeulen, M., & Imants, J. (2020). Towards a comprehensive and dynamic conceptual framework to research and enact professional learning

communities in the context of secondary education. *European Journal Of Teacher Education*, 43(3), 405–427.

- Oppi, P., & Eisenschmidt, E. (2022). Developing a professional learning community through teacher leadership: A case in one Estonian school. *Teaching and Teacher Education: Leadership and Professional Development*, 1, 100011.
- Pandian, V., Awang, M. B., Ishak, R. B., & Ariff, N. (2022). A Systematic Literature Review on Professional Learning Community Models. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 7(11), e001902-e001902.
- Saydam, D. (2019). Teachers' beliefs on professional learning. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 34(4), 915–925.
- Scull, A. (2021). Creating community, learning together: Designing and delivering a program for staff professional development. *College & Research Libraries News*, 82(3), 117.
- Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006). Professional learning communities: A review of the literature. *Journal of Educational Change*, 7(4), 221–258. 10.1007/s10833-006-0001-8.
- Tai, M.K., & Omar Abdull Kareem. (2021). An Analysis On The Implementation Of Professional Learning Communities In Malaysian Secondary Schools. *Asian Journal of University Education*, 17(1), 192–206. <https://doi.org/10.24191/ajue.v17i1.12693>
- Toole, J. C., & Louis, K. S. (2002). The role of professional learning communities in international education. In *Second international handbook of educational leadership and administration* (pp. 245–279). Springer, Dordrecht.
- United Nations Development Programme (UNDP) (1990). *Human Development Report 1990: Concept and Measurement of Human Development*. New York: United Nations Development Programme. <http://www.hdr.undp.org/en/reports/global/hdr1990>
- Vella, R., & Azzopardi, J. A. (2021). Effective Continuing Professional Learning and Development: The Case of Mathematics Teachers in Malta. *Biomedical Journal of Scientific & Technical Research*, 40(5), 32570–32580.
- Wenger, E. (1998). *Communities of Practice: Learning, Meaning, and Identity*. Cambridge: Cambridge University.
- Yeol, L. S. (2020). Analysis of the effect of school organizational culture and professional learning communities on teacher efficacy. *Интеграция образования*, 24(2 (99)), 206–217.

Krisztina STUMMER

The Image of Women's Upper Commercial Schools in Hungarian Pedagogy in the First Half of the 20th Century

Introduction Educational opportunities for women – overview

Women in Hungary could enter state-regulated institutional education due to a long process of progress. In the 19th and 20th centuries, several social, economic, and educational policy changes took place, influencing women's educational opportunities and the labor market.

Traditionally, education for girls was mainly provided within the family. They learned the necessary skills from their mother. The first institution of lower education was the "handicraft school", established in 1828 in Buda with the support of the Buda Women's Association on the initiative of Teréz Brunszvik (Nemes-Németh & Sanda, 2021). In higher social classes, however, families employed private teachers to ensure a proper education for their daughters (Rébay, 2006).

At the state level, Article 38 of the Law of 1868 established the right to education for all, regardless of gender, religion, or social background (Article 38 of Law of 1868). Thus, at the elementary level, girls were also entitled to education benefits: from 6 to 12, they were obliged to attend elementary school and then, if they no longer studied, to repeat school.

Those who chose to continue their education could enroll in upper elementary or state civil schools. At this level, schools for girls and boys differed in length of education and curriculum; the male curriculum offered a broader range of subjects. In addition, each girls' school offered classes in domestic science, needlework, and child-rearing.

From the very beginning, the Hungarian National Association for Women's Education (in Hungarian: "Országos Nőképző Egyesület") supported the cause of girls' education, and it was the first to initiate the opening of an institution where they could access an advanced level of education. As a result of their initiative, the first higher girls' school in Hungary was founded in 1869. It aimed to provide an education of a similar quality to the boys' schools but failed to achieve this long-term (Sanda, 2016).

The Hungarian National Association for Women's Education founded the first girls' secondary school. It was opened in 1896, and its first class graduated in 1900. After that, however, the number of girls' secondary schools grew slowly, with only four operating by 1912 (Rébay, 2009).

In 1926, women's education was first regulated by law. The law differentiated girls' secondary schools, offering a humanistic education, girls' lyceums, emphasizing modern languages, and girls' boarding schools, teaching housewife duties (Rébay, 2009).

Bálint Hóman, in the spirit of standardization, abolished the previous types of schools in 1934 and stated that "the name of the Hungarian secondary school is gymnasium." (Article 11 of Law of 1934). However, since this measure failed to bring the expected results in the long run, he reintroduced the girls' lyceum from 1938, which was identical to the previous one but independent of it (Rébay, 2009).

Research objective and questions

The present study examines how the Hungarian Pedagogy journal authors between 1909 and 1938 formulated their opinions on women's upper commercial schools.

The starting date of 1909 is related to the opening of the first women's upper commercial school, while 1938 marks the school type's raising to secondary school status.

The research seeks to answer the following questions:

- Does the journal address women's upper commercial schools?
- Do the authors of the publications take credit?
- What is the author's connection to commercial education?
- What is the gender distribution of the authors?
- What views does the author convey about the school?
- How do the publications fit into the portrayal of women of the era?

Formation of women's upper commercial schools in Hungary

In the second half of the 19th century, women's demand for professional (commercial) education increased significantly. Initially, this demand was met by the creation of commercial courses. In 1888, the first independent commercial course for women was established, with a duration of six months. Two years later, the course duration was extended to eight months. However, the content and quality of these courses did not meet professional and social needs. The city of Bratislava was the first to submit a petition to the Minister of Religion and Public Education. Later that year, in 1909, the city received permission to open the first women's upper commercial school. In its organization and curriculum, the women's school was modelled entirely on the boys' school, according to Decree No. 44.001 of 1895 (Nagy, 2014). In our case, the identical curriculum is critical because, in the first half of the 20th century, all types of schools, without exception, took care of subjects suitable for the female mind, thus including domestic science and needlework in their lessons. In contrast, these subjects were absent from the upper commercial schools.

Despite the lack of traditional female content, the number of new institutes and students has increased yearly. One of the reasons for its popularity was that after three years of study, students could take a commercial school leaving exam and, with the certificate, could continue their studies at commercial colleges (Schack & Vincze, 1930).

Student overload and the ratio between general and vocational classes have generated ongoing debate. From 1919, the length of the study was increased to four years because "it is absolutely impossible to complete the curriculum of a commercial school in three years honestly" (Trautmann, 1898; quotes by: Nagy, 2014:97). In addition, training continued at two different stages: the first two years of study became a commercial course, where students were introduced to the Hungarian commercial life. The last two years focused on the specifics of international economics. Despite the extended study duration, the women's schools continued to attract many students, reaching 18 by the end of the 1920s (Schack & Vincze, 1930).

The upper commercial schools were granted the status of secondary schools in 1938, marking the first legislation of this type of institution. After this date, the institution functioned as a secondary school, and general education was given a more significant role than before.

Opinions in Hungarian Pedagogy

Hungarian Pedagogy is the journal of the Educational Committee of the Hungarian Academy of Sciences. Since its foundation in 1892, it has been one of the most renowned journals of Hungarian educational science. The organization aims to "unite all those committed to the development of our education" (Csengeri, 1982:1). Regarding its choice of topics, Hungarian Pedagogy is very diverse: besides theoretical and practical issues, it also includes articles on the history of education, current school textbooks, and the different types of schools. (Mészáros, 1992).

Relevant publications related to the topic were selected and processed through document analysis. Only those publications were considered relevant, which expressed an opinion on the type of school; thus, recruitment or job advertisements were not considered relevant. Between 1909 and 1938, only four relevant papers were written by two authors.

Our first author, Vilmos Szuppán, was involved in women's and commercial education. During his wide-ranging activities, he published numerous studies, compiled several school textbooks, worked as a headmaster of girls' schools and was director of the Academy of Commerce (Nagy, 1979).

Szuppán's name often appears in connection with commercial schools, as he regularly criticizes their functioning. In this case, he describes his thoughts on a congressional debate. The question was raised at the meeting whether the commercial education of the two genders could be the same. A lively debate emerged on this matter. The argument was made that human progress and economic conditions require equal education between the genders. Girls should also be given a place in the labor market because of the growing demand and to provide a livelihood for the unmarried. Vilmos Szuppán, on the other hand, argues that equal education should indeed be provided, but not by introducing an identical curriculum. "The physiological and psychological constitution and special skills of women, which differ from those of men, ... and the differences in the educational background of the two genders, stand in the way." (Szuppán, 1914:61) Szuppán often refers to the biological differences between the two genders, which he believes determine the jobs that can be filled. Girls are suitable for commercial work or correspondence in foreign languages, but they would not be suitable for higher positions. This difference alone justifies different studies. In addition, he also argues that "at no time in a girl's training for any profession should her preparation for the duties of motherhood and housewifery be forgotten, and thus alienating her from her natural vocation." (Szuppán, 1914:61) A woman's natural vocation is to become a good mother, housewife, and wife (Kéri, 2015; Pukánszky, 2006). At this period, this idea is not unique. There is a widely held traditional view of women's primary activity being family life and the duties associated with it. He uses similar arguments in his publication of 1931. He rejects the notion that girls' schools should be "the same as boys' schools" (Suppan, 1931:207). Again, he mentions the psychological and physical differences and stresses job opportunities. He highlights the many problems in the curriculum and operation of boys' commercial schools and adds that women's schools are also plagued by the fact that "they have the same curriculum as boys' schools. Therefore, it suffers twice as much: it has all the problems of a boys' school and, despite its feminine name, it is not a girls' school." (Suppan, 1931:207)

The second author, Alajos Loczka, is a chemistry teacher. During his career, he was head of the Department of Vocational Education of the Ministry of Religion and Public Education, where he opened several vocational schools (Kenyeres, é.n.).

Given the economic conditions, Loczka understands the parents' desire to send their daughters to schools providing a breadwinning possibility. However, he also believes that modern general education is desirable. He criticizes that "the women's upper commercial school ... prepares them for clerk careers, but has no regard for the needs of future mothers" (Loczka, 1931:91). He lacks the necessary skills for motherhood and housewifery, such as domestic science or child-rearing. A "Hungarian grand lady" needs to be able to socialize, run a household and raise her children with the proper awareness. He is not against women's schools providing qualifications, "but qualifications should not be for a career as a clerk, but for a career as a housekeeper, which is more suited to women's nature" (Loczka, 1931:92).

A few years later, Loczka continues his argument along the same reasoning. He realizes parents are worried about their daughter's fate, as they cannot all marry, leaving their fate uncertain. Therefore, although they need to be prepared for self-sufficiency, it is wrong for our school system to put women "in competition with men" (Loczka, 1938:84).

Reflecting on the curriculum of the two genders, he says: "Since 1909, commercial vocational education has been extended to include schools for women, with the same curriculum and teaching materials as for boys. Separate schools for women have also been created within the framework of vocational training in industry, but these are, of course, very different from boys' schools because they are adapted to the female vocation." (Loczka, 1938:80). He cites the example of industrial education, where women's studies are "naturally very different" from those of boys.

Both authors sharply criticize the curriculum of women's upper commercial schools. The main arguments cited are the biological, physical, and psychological differences between the two genders and women's traditional roles within the family (Stummer, 2022).

Women's portrayal in Hungary in the first half of the 20th century

In the first half of the 20th century, two portrayals of women can be outlined in parallel: the traditional and the modern image of women.

The traditional image of women is primarily based on the "triple role" of girls. In other words, they should become good wives, housewives, and mothers (Kéri, 2008, 2015). They should be taught all the skills they can use later in the family environment.

Another frequently mentioned argument (as we have already seen) is the two genders' different physical and mental constitutions. On this basis, they discouraged the pursuit of an advanced level of education for girls and the same school curriculum as for boys (Kéri, 2015).

Nevertheless, the traditional image of women cannot be seen as unilaterally negative. On the contrary, motherhood was seen as a vital vocation. The prevailing view during this era was that "a woman's place is not in the factory, but in the family. The most important of women's duties is to tend the family hearth, to ensure the dignity and happiness of family life" (Altenburger, 1916:67). In a constantly evolving world, the modern woman's duty remains to be her husband's companion and stand her ground as a housewife (N.N, 1908).

Employment still needs to be supported because working women remove the possibility of supporting the family from men. "Every woman who manages to get a job displaces a man, so the increase in women breadwinners means more unemployed men" (N.N., 1904:6). It also takes time away from family and children.

The modern image of women refutes traditional views on many points. Motherhood and married life remain central but are complemented by the idea of an advanced level of education and employment. The demand emerges that "at least in our institutions providing general, non-vocational education, boys and girls, men and women, should receive an equal education" (N.N, 1906:125).

Economic and social conditions justify the presence of women in the labor market, leading to greater acceptance in some circles. "The good old Hungarian society has changed; the middle class is impoverished. Little women also need to look for a breadwinning career. Switchboards, post offices, telegraph, schools, wherever they can be placed, no longer seem to be sufficient. The higher career paths must be opened to them" (N.N., 1908:181).

As a result of the world wars, women could prove their worth in specific jobs. It is conceivable that, without the world wars, they would not have had this opportunity until much later (Stummer, 2021).

After a brief review of the two representations of women, it is clear that the writings published in the Hungarian Pedagogy can be placed within the context of women's traditional image.

Summary

In conclusion, there were only four publications on women's commercial education in the period under review. Given the novelty of this type of school, this figure is relatively low. Furthermore, the four selected papers were written by two authors, both men, who expressed their views under their names. Vilmos Szuppán and Alajos Loczka share sharp criticisms and make very similar arguments. Their main counter-argument is that the school ignores girls' physical and psychological features, failing to prepare them for their vocation as women.

References

- A modern leány. *Vasárnapi Ujság* 55. évf. 3.sz. 1908. 49. https://adtplus.arcanum.hu/hu/view/VasarnapiUjsag_1908/?query=modern%20n%C5%91&pg=56&layout=s (2022.10.13.)
- Adolf, Altenburger (1916): Orel Géza: Műhelyi nevelés Páris iskoláiban. *Magyar Pedagógia*. 25. évf. 63–65.
- Józsefné, Attila Ambrus & Katalin Kéri (2015): *Leánynevelés és női művelődés az újkori Magyarországon* (nemzetközi kitekintéssel és nőtörténeti alapozással) (Akadémiai doktori értekezés). Pécs. http://real-d.mtak.hu/837/7/dc_1067_15_doktori_mu.pdf (2022.10.23.)
- János, Csengeri (1892): Olvasóinkhoz. *Magyar Paedagógia*. 1892/1, 1-2. sz. 1-2.
- Ágnes, Kenyeres (szerk., é.n.): Loczka Alajos. In: *Magyar életrajzi lexikon* <https://www.arcanum.com/hu/online-kiadvanyok/Lexikonok-magyar-eletrajzi-lexikon-7428D/> (2022.11.12.)
- Katalin, Kéri (2008): *Hölgyek napernyővel*. Nők a dualizmus kori Magyarországon 1867-1914. Pro Pannonia, Pécs.
- István, Mészáros (1992): Magyar Paedagógia – Magyar Pedagógia 1892-1992. *Magyar Pedagógia* 1992/92, 1. szám. 5-24.
- Adrienn, Nagy (2014): *A felső kereskedelmi iskolák fejlődéstörténete Magyarországon (1867-1945)*. Doktori (PhD) értekezés. Kézirat. Pécs.
- Sándor, Nagy (szerk. 1979): *Pedagógiai Lexikon*. Budapest, Akadémiai kiadó
- Nagy-gyűlés 1900 január 20-án. *Magyar Paedagógia* 15. évf. 1.sz. 1906. pp. 125.
- Nóra, Nemes-Németh & Dániel, István Sanda (2021): Die Anfänge Weiblicher Erziehung und Bildung in Ungarn. In: A. Somogyi. (ed.): *13th International Conference of J. Selye University. Theological Section*. Conference Proceedings. 105-111. 7 p. ISBN: 978-80-8122-410-2 <http://uk.ujs.sk/dl/4102/NNS.html> (2022.11.24.)
- N.N (1908): Fizikus leányok. *Vasárnapi Ujság*. 55. évf. 10. sz. 1908. 181. https://adtplus.arcanum.hu/hu/view/VasarnapiUjsag_1908/?query=modern%20n%C5%91&pg=188&layout=s (2022.10.13.)
- Béla, Pukánszky (2006): *A nőnevelés évezredei*. Gondolat, Budapest.
- Béla, Schack & Frigyes, Vincze (1930): *A kereskedelmi oktatásügy fejlődése és mai állapota Magyarországon*. Franklin-Társulat, Budapest.
- Dániel, István Sanda (2016): *Bevezetés a szakképzéstörténetbe*. Typotop Kft. Budapest. ISBN: 978-61-5804-9344
- Krisztina, Stummer (2021): A nőkről alkotott kép hazánkban a 20. század első felében sajtótermékek tükrében. *Képzés és Gyakorlat*. 19. 1-2.sz. 39-48.
- Krisztina, Stummer (2022): Sajtótermékek a női felső kereskedelmi iskoláról a 20. század első felében. In: Pusztafalvi Henriette-Takács Zsuzsanna Mária (szerk): *Útitársak*. Tanulmánykötet Kéri Katalin tiszteletére. Magyar Tudományos Akadémia Pécsi Területi Bizottsága, Pécs. 302-317.
- Vilmos, Suppan (1931): Még néhány szó a felső kereskedelmi iskola problémájáról. *Kereskedelmi Szakoktatás* 38. 10. sz. 409-421.
- Vilmos, Szuppán (1914): A X. kereskedelmi oktatásügyi nemzetközi kongresszus. *Magyar Paedagógia* 1914/23. 57-62.
- *Az 1868. évi XXXVIII. tc: A népiskolai közoktatás tárgyában.* <https://net.jogtar.hu/ezer-ev-torveny?docid=86800038.TV&searchUrl=/ezer-ev-torvenyei%3Fextraparams%3D%7B%2522ID%2522%3A%2522FullTextSearch%2522%2C%2522Year%2522%3A%25221868%2522%2C%2522Kibocsato%2522%3A%2522TV0%2522%7D> (2022.11.10)
- *Az 1934. évi XI. tc: A középiskoláról.* <https://net.jogtar.hu/ezer-ev-torveny?docid=93400011.TV&searchUrl=/ezer-ev-torvenyei%3Fextraparams%3D%7B%2522ID%2522%3A%2522FullTextSearch%2522%2C%2522Year%2522%3A%25221934%2522%2C%2522Kibocsato%2522%3A%2522TV0%2522%7D> (2022.11.10).

Attila MÉSZÁROS - Richárd SZALÓKI

The need and opportunities for developing emotional intelligence in education

Introduction

Emotional intelligence directly influences teacher performance as one of the indicators of successful teaching evaluation. In a comprehensive meta-analysis, Martins, Ramalho, and Morin (2010) showed that emotional intelligence is clearly, firmly, and unequivocally related to mental and physical health. They examined emotional intelligence in school performance. It was shown that emotional intelligence has organizational, clinical, health, educational, and social implications. However, it should not be thought that there are no critical opinions and debates in the field. Many researchers still doubt whether emotional intelligence adds anything to the traditional personality and cognitive ability variables (A., Bastian, & Nettelbeck, 2005). Another question of great interest and importance is whether emotional intelligence can be developed. Recent evidence from Di Fabio and Kenny (2011) suggests that specific training may benefit significantly. We need to know more about what type of training is needed and why (Di Fabio & Kenny, 2011).

Research has suggested that some people are more successful in their careers than others, even when they have equal educational and experiential opportunities (Scheusner, 2002). One explanation may be differences in intellectual intelligence (IQ) and emotional intelligence (EQ). IQ characterizes intellectual competence, or the ability to apply knowledge in making decisions and adapting to new situations. EQ is one formulation of emotional and social competencies or the ability to identify emotional expressions in oneself and others (Goleman, 1997). Although both can be improved with training and can change over time, EQ differs from IQ's ability to respond to emotions to environmental stimuli.

Thus, emotional intelligence is recognizing and regulating emotions in oneself and others to make effective decisions. Emotional intelligence is a relatively new term, but it was already addressed by Plato 2000 years ago when he stated that all learning has an emotional basis (Bollokné Panyik, 1999). Wechsler developed the concept of non-cognitive intelligence, which he argued is essential for success in life, and that intelligence is incomplete until we can define its non-cognitive aspects (Dhani & Tanu, 2016). The common denominator of the psychological views on emotional intelligence, which will be presented later, is that we can distinguish at least three skill domains:

- ability to Emotional Awareness, or the ability to identify and name one's own emotions
- the ability to harness emotions and apply them to tasks such as thinking and problem-solving
- the manage emotions, which includes both regulating one's own emotions when necessary and arousing or calming people.

It is thus accepted that emotional intelligence goes beyond the purely cognitive elements, as it also includes elements of the affective domain.

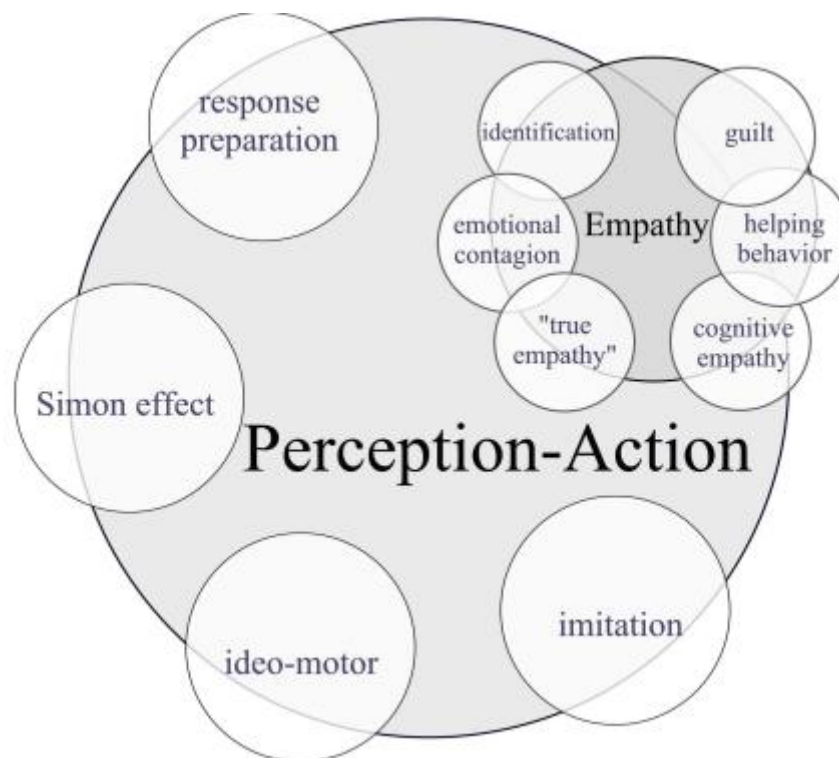
The initial ability-based definitions of emotional intelligence were recorded in the 1990s by Mayer and colleagues. According to them, 'emotional intelligence is a form of emotional information processing that involves the accurate evaluation of one's own emotions and the emotions of others, the appropriate expression of emotion, and the adaptive regulation of emotions in ways that improve the quality of life' (Mayer, J.D.; Salovey, P., 1990). In introducing the concept of emotional intelligence, Salovey and Mayer argued for broadening traditional models of intelligence, emphasizing the adaptive values of flexible planning, social competence, and attentiveness to others. Mayer and his colleagues elaborated and extended the original definition a few years later. According to them, emotional intelligence is 'the ability to recognize emotions' meaning and relationships and think and problem-solve based on these. Emotional intelligence plays a role in the perception of emotions, the assimilation of emotions, the understanding of the information carried by emotions, and the management of emotions.' (Sternberg, 2000).

Relational systems of emotional intelligence in education – Educational aspects of empathy

In Hungary, empathy is associated with Béla Buda, whose book *Empathy – the art of empathy* was published in 1978. As a result of the book, the concept of empathy became an everyday part of not only professional but also intellectual vernacular. Béla Buda defines empathy as 'to empathize is to see with the eyes of another person, to hear with the ears of another person and to feel with the heart of another person.' (Buda, 1985).

According to Baron Cohen (2004), 'empathy is the impulse to recognize the feelings and thoughts of others and to respond to them with appropriate emotions' (Baron-Cohen, 2004). Carl Rogers wrote in 1959: 'to be empathic is to perceive accurately the interpretive framework of the other with all its emotional meanings and components, as if one were the other, but without ever losing this 'as if''. Since Béla Buda's book, much research has been published on empathy development and neurobiological background. There is a consensus in the literature that empathy is a multidimensional concept that includes both affective and cognitive components (Preston, 2002). The affective component refers to empathic caring and concern, while the cognitive component refers to taking a different perspective (Figure 1). In itself, affective empathy may be unpleasant for the empathizer, who may experience distress and anxiety when seeing the other person's negative emotions. Thus, affective empathy without cognitive empathy can cause hypersensitivity and vulnerability. This self-referential distress at seeing another's suffering is called empathic distress, which can come at the expense of empathic caring (Hoffman, 1991).

Figure 1: Perception-action model of empathy



Source

https://www.researchgate.net/publication/10866840_Empathy_Its_Ultimate_and_Proximate_Bases (download: 2022.01.06.)

In the early 1990s, the focus of empathy research turned to the possibility of objective measurement, and researchers developed several tests for this purpose. Self-completion tests, which ask about an individual's behavioral habits and sensitivity in social relationships, measure the person's empathic capacity in general, i.e. the degree of dispositional empathy. One such test is Baron-Cohen's empathy quotient test (Baron-Cohen, 2004).

Empathy and emotional intelligence have been measured among mental health undergraduates. 104 university students and their teachers participated in the study. They investigated whether empathy can be taught and whether it is possible to teach a person to 'walk in someone else's shoes.' The measurement was done using the Davis IRI Interpersonal Reactivity Index Scale (Davis, H. M., 1983), using pre-and post-tests. Intervention between the measurements was done with Rogers-based skills training. Teachers provided information about their training and teaching experiences and observed the empathy skills of their students through interviews and questionnaires. As a result of the measurements, it can be shown that the development of empathy, 'teachability,' shows statistical significance in the subscales of empathic caring and perspective-taking. The control group, which did not receive any development, did not show any improvement in any of the subscales, while the group that received training did.

Although the female students had higher empathy skills at the beginning of the measurement, the development showed that the male students' empathy skills could be developed similarly, and the significant differences were reduced, i.e., both genders could be developed equally in empathy. After performing factor analysis, as recommended by Davis, the total empathy factor was not calculated from the results of all four subscales. However, the empathy mean was calculated by excluding personal distress. There was a demonstrable improvement in the empathic concern, perspective shift, and overall empathic mean (sum of the scores of the fantasy scale, empathic concern, and perspective shift subscales). According to Davis, the independent and dependent variables on the separate subscales of empathy cannot be accurately estimated when using the IRI. He further suggests that the personal distress subscale should not be added to the scores of the other subscales because it is the most primitive empathy component. It has been shown that with advancing age, with the onset of true adulthood, i.e., with the maturation of the personality, the empathy component of the personal distress subscale tends to decrease. A further result of the study is that the development of genuine empathy of the personality starts with communication in childhood and the identification with imagined situations and characters in adolescence. The ability to imagine and identify is the starting point for developing empathy. Thus, the development of empathy occurs in stages and a process. It can be demonstrated using the IRI scale. For example, there is an increase in the scores on the fantasy scale in university age groups compared to adolescents. Thus, the empathy skills of university students are more developed, and the basis for this can be detected in the fantasy scale. These can be built upon by more mature empathic components, such as the attitudinal components of perspective-taking cognitive and empathic caring attitudes.

Further findings of the study are that women's empathic communication is better than men's, but the effect of developmental training is based on Carl Rogers' person-centered principles. In other words, if liked, men's empathy skills can be developed similarly. Empathy can be taught regardless of gender. The total empathy potential as an emotional empathy skill, calculated from the scores of the three subscales, was investigated in this research (S., Nadeau, K., & Marz, 1994).

The relationship between emotional intelligence and empathy

Emotional intelligence is a set of human capacities that takes emotional adaptation to the highest level. However, there are at least three basic interpretations of this concept. The broadest interpretation is the cultural level, characterized by how a person with the currently expected abilities relates and adapts to different social groups in a given period. The second interpretation is that emotional intelligence includes personality traits essential for achieving goals, assertiveness, and success, such as perseverance, achievement motivation, social skills, and self-discipline. Finally, according to the third and narrowest interpretation, represented by academic psychology, emotional intelligence is the set of skills that we use when processing emotional information (Oláh, A., 2005).

The separation of the internal components of intelligence has been going on for decades. From its collective concept, creativity is separated, followed by emotional intelligence. Some researchers emphasize the role of emotional and social-relational ability rather than the personal cognitive nature of intelligence. According to Thorndike (1920), such a component is social intelligence, a key element

of interpersonal relationships. In his view, it is essential to understand others accurately and to behave accordingly. In Gardner's (1993) multiple intelligence concept, there are also elements of intrapersonal intelligence - self-monitoring and activating ability - and interpersonal intelligence, i.e., the ability to relate (Gardner, 1993).

The best-known of the mixed models of emotional intelligence is that of Bar-On (1997), who argues that 'emotional intelligence is the set of emotional, personal and social competencies and skills that contribute to an individual's ability to cope effectively with the demands of his or her environment.' (Bar-On, 1997). Bar-On draws on Gardner's theory and believes that emotional and social intelligence are closely related trait characteristics that can be understood as components of a common construct, 'emotional and social intelligence' (Bredács, 2009). Dispositional and situational empathy; the relationship of empathy to interpersonal and intrapsychic factors.

Empathy is a subset of emotional intelligence, a concept that is named after Bar-On (Bar-On, 1997). Another way of measuring empathy is to test a person's ability to recognize the emotional reactions of others, i.e., to test situational empathy.

Empathy is an ability that depends on personality: there are people with good and less good empathic skills. It is called dispositional empathy (Davis, H. M., 1983). It does not mean that empathy cannot be developed. Furthermore, empathy depends on the state of the person at the moment. After all, if someone is tired, in pain, or seriously distressed, his or her empathic capacity will be reduced. Anything that focuses a person's attention on him or herself reduces empathy. Thus, empathy is not only a stable personality trait but also depends on the current state of mind. The latter is situational empathy, which always refers to a given moment.

Focusing on the interpersonal aspect of empathy, Davis (1983) also argues that a parallel emotional response may emerge in the recipient due to the affective state of the other, leading to the emergence of emotions similar to the other's actual or assumed emotions.

Already in adolescence, the role of specific characteristics of empathy and anxiety is significant, i.e., their development is decisive for problem-solving, and vice versa: both anxiety and empathy depend on the effectiveness of problem-solving. The relationship between social problem-solving, anxiety, and empathy was investigated in adolescents aged 12-19. The study reveals that the relationship between positive orientation in problem-solving and a cognitive sub-domain of empathy, perspective taking/shifting, gradually strengthens with age. Negative orientation and avoidance or impulsivity show an increasingly close relationship with another component of empathy, personal distress. Negative orientation is strongly influenced by trait anxiety in all age groups. The findings may be helpful in everyday pedagogical practice as well as for formulating future research and development goals (Gáspár & Kasik, 2015).

The Davis IRI distress scale, which measures the tendency to adopt negative emotions, shows a significant positive correlation between emotional exhaustion and a decrease in feelings of personal efficacy. While depersonalization is inversely associated with perspective-taking and empathic caring, the ability to change perspective is predictive of increased feelings of personal efficacy. Feelings of distress are also found to be an influential factor in emotional exhaustion and the reduction of personal efficacy. The three most important variables determining the development of feelings of personal efficacy are perceived distress, the ability to change perspective, and impersonal treatment. It is expected that the decrease in feelings of personal efficacy is most influenced by perceived distress and depersonalization among the variables examined. An increase in personal efficacy is expected with the emergence of the ability to change perspective. Depersonalization is reduced by empathic caring and an attitude that focuses on the healer-patient relationship, but with an increase in emotional exhaustion, depersonalization is expected (Fülöp & Devecsery, 2012).

Empathy provides an essential basis for being able to relate intimately to others and is also vital for coping with stress and managing conflict adequately (Kremer & Dietzen, 1991).

Empathy is critical to a person's self-efficacy, alongside equally important perceptions of reality, intelligence, and creativity. It has essential preventive potential in maintaining mental health (S., Nadeau, K., & Marz, 1994).

The relationship between emotional intelligence and coping strategies

Coping skills, also known as coping strategies, measure how an observed person copes with stressful situations. Behavioral science argues that the human-environment system dynamically shapes a person's behavior (Kopp, 1994). In this system, the decision-making process plays a key role. The person must constantly decide whether he or she can meet the given environmental challenges and find solutions. In short, to cope with the situation. Coping strategies are also crucial because lifelong learning requires them (Molnár, 2015).

According to the human-environment model, the person strives to maintain a state of equilibrium. Stress, in this case, can cause a person to lose mental balance. Coping is a process whereby a person makes cognitive and behavioral efforts to resolve the conflict that is the source of stress.

Lazarus and Launier (1978) distinguish two types of coping (Margitics & Pauwlik, 2006):

- Problem-focused coping is when the person focuses on the situation, and the problem, in an attempt to change it so that it can be avoided in the future.
- Emotion-focused coping: the person is then concerned with alleviating the emotional reactions caused by the stressful situation, preventing negative emotions from taking over. The person uses it even if the situation cannot be changed.

Problem-focused coping involves using problem-solving strategies, which can be directed outwards, at the problem situation itself, and inwards, with the person changing something in themselves rather than changing the environment.

As a result of Lazarus and Folkman's (1986) research, a further eight types of strategies can be distinguished within problem-focused and emotion-focused coping (Margitics & Pauwlik, 2006):

- Confrontation: This involves confronting the problem, actively coping;
- disengagement: it means distancing oneself emotionally and mentally from the situation in order to gain energy for further coping;
- regulating emotions and behaviour: this means finding the emotional expression and behaviour that best helps to resolve the situation;
- seeking peer support: this means seeking and using the resources and support available in the peer environment;
- taking responsibility: this involves taking perceived, attributed control;
- Problem-solving planning: a specifically cognitive, rational strategy it involves evaluating the options that may help to resolve the situation;
- avoidance-avoidance: not engaging in confrontation, exiting the situation;
- seeking positive meaning: evaluating the event with negative meaning as a challenge in a positive way.

According to Attila Oláh's international research, adolescents growing up in all the cultures he has studied (Hungarian, Indian, Italian, Swedish, Yemeni) have adopted constructive ways of coping with low and medium anxiety, and avoidance as a maladaptive way of coping with tension in high anxiety (Oláh, 1995).

The need to develop emotional intelligence in education

It is crucial to understand the distinguishing characteristics between emotions and EQ. Emotion is a natural instinctual state from our present and past experiences and situations. Emotions come from our environment, our circumstances and knowledge, as well as our moods and relationships. Our feelings and experiences influence our emotions. In contrast, EQ is the ability, skill, and Awareness to know, recognize and understand these feelings, moods, and emotions and positively use them. EQ is

learning to manage emotions and use that information to behave and act, including making decisions, solving problems, self-management, and leading others. Furthermore, EQ can be confirmed to enhance self-esteem, well-being, and professional and personal motivation (Faltas, 2017).

People are often surprised that there are three different theories within the emotional intelligence paradigm. Each of these theories attempts to better understand and explain the skills, traits, and abilities associated with social and emotional intelligence. The existence of multiple theoretical perspectives within the emotional intelligence paradigm does not indicate weakness but rather shows the magnitude of the field. Thus, the definitions within the field of emotional intelligence are variable, complementing rather than contradicting each other.

However, despite its importance in schooling, there is still not enough emphasis on developing emotions. According to a US study, half of the 150 teachers surveyed had never heard of emotional intelligence. Most of those familiar with the concept understood it as 'an important life skill' or 'something that makes learning more effective and promotes well-being.' On the other hand, a third of teachers considered it to be 'interesting but confusing,' while some saw it as a new kind of sentimental fad' (Claxton, 2005).

A 2019 study suggests that years in education influence the emotional intelligence of teachers and trainers. The results confirm a significant difference in emotional intelligence between students in full-time education and trainers in teacher education. The factors expressing empathy are higher for instructors already in their careers. Practice and age also play a significant role in this. This variation is two-way. Students have significantly higher fantasy scale scores, i.e., a tendency to identify with fictional persons. Because of their less experience, they find it easier to place themselves in an imaginary situation. Therefore, they are more congruent with the student's ideas and more involved. Teachers in the field are more detached when it comes to events that require imagination. The values of personal distress are also higher for students than career educators, making it more difficult for them to respond adequately to a stressful situation. In other words, they are more robust in the affective involvement factor of empathy, which makes the student experience the suffering and anger of others more acutely. As a result, they become more involved more quickly.

On the other hand, this emotional component can also inhibit empathic caring, which is a core task of the teacher. Practitioners' perspective-taking capacity increases so that with this cognitive component of empathy, they can better take up a point of view or change focus, which can be accomplished in a mental operation during an affective engagement. The other strength that was significantly different was empathic caring. The ability to empathize was higher for the trainers in the field than for the students, so an affective impact could more easily induce action in them.

In addition, the research found a correlation between intrapersonal (confidence, self-awareness, self-esteem, independence, self-actualization) characteristics and self-punishment as a coping strategy. It means that if a trainer, educator, or developer has good self-awareness, they will put themselves in the right place when faced with a problem. So they try to maintain the stability of their personality when dealing with difficult or stressful situations, so the focus shifts from the threat to the self. Therefore, they often seek external support and help in stressful situations. In turn, the intrapersonal scale and the distraction coping strategy were also correlated with each other for trainers in the labor market, so one possible manifestation of their coping is that the individual performs an avoidance maneuver, exits the situation, delays intervention, turns towards self (Mészáros, 2019).

When examining the coping strategies of each group, the research indicated that students had significantly lower stress control scores than those in the teaching profession. So maintaining their stability requires much more effort. On the other hand, teachers are more confident and flexible. They have the ego power to maintain their stability. As a result, teachers can identify and use the two steps of the coping process more efficiently. The first step is to clarify the extent to which stress is affecting the individual's life and goals and whether and what can be done to eliminate the stressor. In the second step, it takes into account what internal resources are available for coping (whether a problem-centered or emotion-regulating strategy is needed, what would happen if nothing were done about the situation) and, if these are exhausted, it changes its internal attitude and itself (Mészáros, 2019).

One of the pillars of emotional intelligence development is self-awareness, i.e., knowing one's own emotions, desires, and motivations and managing them in the present situation to face a positive future. The more success we have, the more effectively we will experience the self-control, self-mastery, and self-direction that will help us to cope successfully in all areas of life. This combination of skills makes it easier to recognize, manage and cope with stressful situations and conflict and to regulate emotions so that they are balanced and negative emotions do not dominate, enabling us to perform well under pressure. This attitude will be the basis for successful cooperation with others, good conflict management, and successful relationship building (Balázs, 2014).

Can emotional intelligence be developed in education?

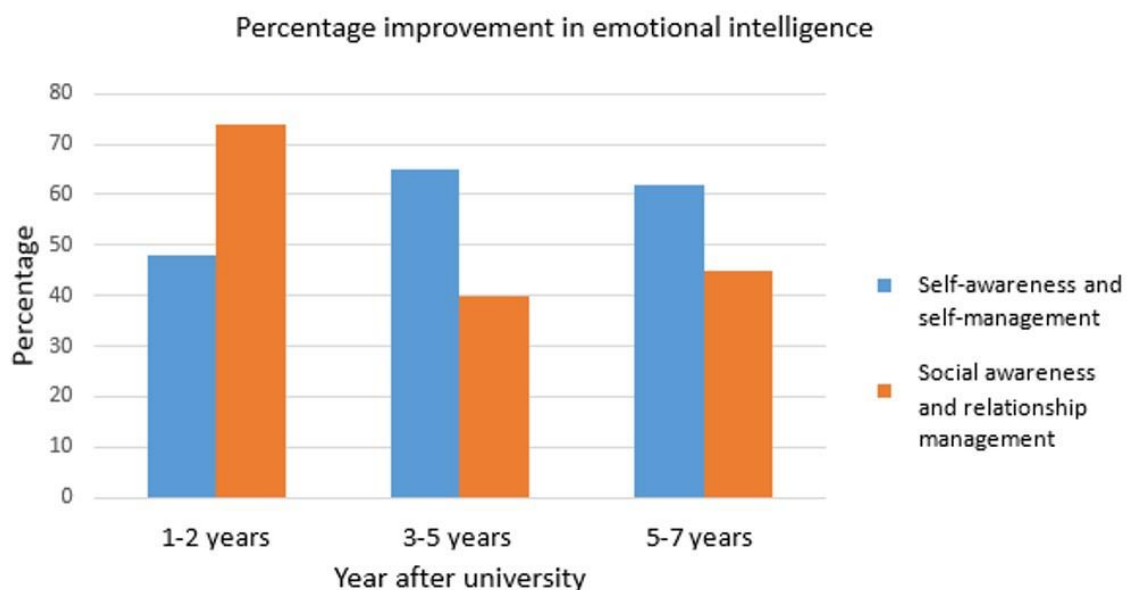
A lot of research has been done to understand how theoretical constructs work. In this sense, it is crucial to develop appropriate measurement tools to guide and interpret the study correctly (e.g. (Baron & Parker, 2000); (Petrides & Furnham, 2001)).

A further factor in the theory of emotional intelligence is the assumption that, unlike IQ, emotional intelligence can be developed. However, there is no convincing empirical research suggesting that these skills can be improved and learned.

Bar-On found that older age groups tend to score higher on the EQ scale, suggesting that, to some extent, EQ can be learned through life experience. There are several findings in psychotherapy; training programs demonstrate that people can improve their emotional competencies through strenuous effort and systematic programs. Furthermore, recent findings in the field of emotional neuroscience have shown that emotional brain connections show remarkable plasticity in adulthood (Davidson, Jackson, & Kalin, 2000).

Although research on emotional intelligence competencies stands out, a longitudinal study was conducted at the Weatherhead School of Management at Case Western Reserve University (Boyatzis, Cowan, & Kolb, 1995). Students in the study participated in a competency-building course that allowed them to develop their emotional intelligence and cognitive skills. Individual goals and an individualized learning pathway were developed and implemented. Students were objectively assessed at the beginning of the program, after graduation, and years later in the workplace. The research results show that their emotional intelligence competencies improved significantly and became sustainable over time. The fact that the effects observed in the experiment were sustained over several years is evidence that not only is it possible to improve emotional intelligence competencies but that such changes can be sustained over time (Figure 2)

Figure 2: Longitudinal study of Western Reserve University



Source: (Boyatzis, Cowan, & Kolb, 1995)

Affective neuroscience findings also support the potential for developing emotional intelligence. For example, LeDoux's findings show that although there are stable individual differences in the central relations of individual emotions, plasticity in activation patterns can also be observed (LeDoux, 1996).

In current practice, however, traditional training at university is performance-based. Therefore, the use of non-traditional pedagogical methods focusing on the development of emotional intelligence is rare. Therefore, there is a need for training programs that promote self-efficacy, the development of a personal vision, and the development of emotional intelligence competencies. If this development takes place, it could give the graduate student a significant advantage in the labor market (Csikszentmihályi, 1990).

Why will people with higher EQ be more successful?

Success in employment, including teaching, is critical. Both our success and the success of our graduate students. So, increasing emotional intelligence can influence the success and quality of teachers' work. When comparing employees, we can see that people with higher emotional intelligence are characterized by: (Furnham, 2012)

- people with high EQ communicate their ideas, intentions, and goals better.
- EQ is closely linked to social skills for teamwork, which are very important at work.
- People with higher EQ build a supportive environment that increases organisational commitment.
- People with high EQ perceive and know their own and their peers' strengths and weaknesses, which enables them to exploit the former and compensate for the latter.
- Higher EQ is associated with more effective adaptive skills, which enable people to better manage expectations and stress.
- People with a high EQ can accurately identify feelings and needs and are more motivated and supportive. They generate more excitement, enthusiasm, and optimism.

Example of developing emotional intelligence in pre-primary education

The University of San Francisco's teacher education department introduced a course on emotional intelligence for students. The course consisted of several components, among which the most interesting parts were the exercises designing new pedagogical environments and methodologies based on theoretical knowledge. In addition, the course included the exploration and use of emotional intelligence theories in teaching and learning. (<https://www.usfca.edu/education> (download: 2022.01.06.))

Development topics and methods:

- Sessions 1-7: Review of emotional intelligence and creativity theories. (The module consisted of readings, forums, case studies, and assignments.) Assignments included a literature review, pedagogical relevance research, and project group brainstorming on how to incorporate intelligence theories into education through a project. After the presentations, feedback circles were used to help clarify each other's projects.
- From session 7, the project design process followed. The topics of completed projects were: using ice-breaking exercises in teaching, displaying social-emotional information in the classroom, developing self-awareness and empathy, identifying and managing emotions, and managing anxiety in the classroom. The project will develop lesson plans and outlines for these topics, which will be transformed into web-based learning aids for teachers, students, and parents. Short descriptions and presentations have been produced for the online interface. Then the whole thing was tested.
- In the end, everyone had to submit complex project documentation.

The central aim was to create a positive emotional environment for the students through a creative project. The students integrated the development of emotional intelligence in different subjects requiring cognitive skills (music, physical education, geography, biology, mathematics, and economics). In each subject, they wanted to demonstrate the possibility of atypical thinking. The aim was to reduce students' emotional anxiety in the classroom.

The development of emotional intelligence is a critical factor in education. The course presented was successful in motivating teacher candidates to apply emotional intelligence theory in practice. The methods used to develop emotional intelligence also proved to be pedagogically valuable. Positive learning experiences emerged, students began to use new expressive teaching gestures, and a culture of collegiality was promoted. The results of the course suggest that the development of emotional intelligence needs to be introduced into teacher education to enhance the methodological diversity of knowledge and skills for student development, especially for emotional development, and to promote emotional Awareness (Kaplan, 2019).

Summary

Emotional intelligence can be learned. From birth, children can decode the feelings of others, express their emotional states, to delay or even control their emotions, i.e., they learn to 'manage their emotions' (Kádár, A., 2012). Therefore, it is essential to emphasize the development of emotional intelligence in teacher training institutions and teacher training. This development is necessary for two reasons. On the one hand, as our research has shown, the number of teachers who become emotionally frail increases in proportion to their time in the profession, putting their mental health and that of their students at risk. On the other hand, their relational skills suggest that the majority of these teachers are capable of effective interpersonal relationships, as they are well-meaning, willing to care for others, and even their strong desire to conform is underpinned by a desire to maintain good social relationships (Baracsi, 2011).

The family is the primary setting for EQ development; from early childhood, a parental attitude that allows for mistakes within certain limits is essential. Just as a parent can own up to his or her feelings and make mistakes, the child should be given the same opportunity. 'Dare to feel' is also an important motto. One of the foundations of EQ is to be brave enough to be myself and to dare to talk about my feelings! However, in many families this is not the case, weakness is often covered up, the principle of 'the parent cannot make mistakes' is followed, so EQ development also becomes the task of teachers and educators. This is why an integrative development process in this direction is important because the child is given a new chance to change.

EQ is a highly complex system of the affective domain of the human psyche. It is our psychological 'fingerprint', which also has a unique, unrepeatable quality. Three important basic factors can be identified. The first is the way in which a person is emotionally connected to himself and his belief system, which we might call 'self-awareness.' The second is how he or she relates to others, through which he or she acquires 'self-knowledge.' The third is how his emotional experiences are integrated into his personality, i.e., how they affect his behavior in later life in terms of stimulation and inhibition. It is also essential to consider how the emotional consequences of crises and traumas later shape emotional intelligence. For these reasons, it is also crucial that in early childhood, when one enters the school system, one is exposed to an adult whose emotional intelligence is high and whose personality has been transformed. As the average age of the teaching profession is high, Hungary needs all newly qualified teachers. Thus, it does not matter what EQ scores students come out of the faculty with. Research has shown that with age and practice, EQ scores increase, but until then, we are influencing many children. It would be good if students came out of universities with higher EQ scores. This would also positively impact child education and, of course, the teacher's professional competencies and interpersonal and intra-psychoic skills.

The intervention has also demonstrated that there is potential to develop the EQ area of the person, but that personality development takes a long time and cannot be learned as a cognitive skills-based subject. In his 1997 book, Goleman argued that cognitive ability (i.e., intelligence) contributed about 20% to life success but that the remaining 80% was directly attributable to emotional intelligence (Goleman, 1997). So, it is also helpful to develop EQ in terms of cognitive performance. Thus, the development of emotional intelligence early on, while still in school, has beneficial effects on personality development.

References

- A., V., Bastian, N., & Nettelbeck, R. (2005, October). Emotional intelligence predicts life skills, but not as well as personality and cognitive abilities. *Personality and Individual Differences*, Volume 39, Issue 6, 1135-1145.
- Balázs, L. (2014). *Érzelmi intelligencia a szervezetben és a képzésben*. Miskolc: Z-press Kiadó Kft.
- Baracsi, Á. (2011). Pedagógusok érzelmi intelligenciája. In J. Karlovitz, & J. Torgyik, *Vzdelávanie, výskum a metodológia*. Retrieved from <http://www.irisro.org/pedagogia2013januar/0511BaracsiAgnes.pdf>
- Bar-On, R. (1997). *Bar-On Emotional Quotient Inventory (EQ-i)*: Technical manual. Toronto: Multi-Health Systems.
- Bar-On, R., & Parker, J. (2000). *Handbook of emotional intelligence*. San Francisco: Jossey-Bass.
- Baron-Cohen, W. S. (2004). The Empathy Quotient: An Investigation of Adults with Asperger Syndrome or High Functioning Autism, and Normal Sex Differences. *Journal of Autism and Developmental Disorders*, 163-175. Retrieved from https://www.researchgate.net/publication/304424998_The_Empathy_Quotient_An_Investigation_of_Adults_with_Asperger_Syndrome_or_High_Functioning_Autism_and_Normal_Sex_Differences
- Bollokné Panyik, I. (1999). *Gyermeknevelés – Pedagógusképzés*. Budapest: Trezor Kiadó.
- Boyatzis, R. E., Cowan, S. S., & Kolb, D. A. (1995). *Innovations in professional education: Steps on a journey to learning*. San Francisco: Jossey-Bass.
- Bredács, A. (2009). Az érzelmi intelligencia és fejlesztése az iskolában – különös tekintettel a tehetséggondozásra. *Iskolakultúra*. Retrieved from http://real.mtak.hu/58104/1/17_EPA00011_iskolakultura_2009-5-6.pdf
- Buda, B. (1985). *Az empátia – a beleélés lélektana*. Budapest: Gondolat Kiadó.
- Claxton, G. (2005). *An intelligent look at Emotional Intelligence*. London: The Association of Teachers and Lecturers.
- Csikszentmihályi, M. (1990). *Flow*. Budapest: Akadémiai Kiadó Zrt.
- Davidson, R., Jackson, D. C., & Kalin, N. H. (2000). Emotion, plasticity, context and regulation: Perspectives from affective neuroscience. *Psychological Bulletin*, 126(6), 890-909.
- Davis, H. M. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, Vol. 44 No. 6., 113-126. Retrieved from https://www.researchgate.net/publication/215605832_Measuring_individual_differences_in_empathy_Evidence_for_a_multidimensional_approach
- Dhani, P., & Tanu, S. (2016). *Emotional intelligence; history, models and measures*. Retrieved from <https://www.researchgate.net/publication/305815636>
- Di Fabio, A., & Kenny, A. (2011). Promoting Emotional Intelligence and Career Decision Making Among Italian High School Students. *Journal of Career Assessment* 19 (1), 21-34.
- Faltas, I. (2017, 03. 04). *Three Models of Emotional Intelligence*. Retrieved from <https://www.researchgate.net/publication/314213508>
- Furnham, A. (2012, February). Emotional Intelligence. Retrieved from researchgate.net: <https://www.researchgate.net/publication/221923485>
- Fülöp, E., & Devecsery, Á. C. (2012). Az érzelmi bevonódás és a kiégés összefüggései pszichiáter rezidensek körében. *Mentálhigiéné és Pszichoszomatika*, 13 (2012) 2, 201-217. Retrieved from <http://real.mtak.hu/58159/1/mental.13.2012.2.6.pdf>
- Gardner, H. (1993). *Multiple intelligences. The theory in practice*. New York: BasicBooks.
- Gáspár, C., & Kasik, L. (2015). A szociálisprobléma-megoldás, az empátia és a szorongás kapcsolata serdülők körében. *Iskolakultúra*, (25. évfolyam, 2015/10. szám). Retrieved from <http://real.mtak.hu/34834/1/05.pdf>
- Goleman, D. (1997). *Érzelmi intelligencia*. Budapest: Háttér Kiadó.
- Hoffman, I. (1991). Empátia, társas kogníció és morális cselekvés. In K. Zs.(szerk.): *Morális fejlődés, empátia és altruizmus*. Szöveggűjtemény. (pp. 43-71). Budapest: Eötvös Kiadó.

- Kádár, A. (2012). Az érzelmi intelligencia fejlődése és fejlesztésének lehetőségei óvodás- és kisiskoláskorban. *PedActa*, Volume 2, Number 1.
- Kaplan, D. E. (2019). Emotional Intelligence in Instructional Design and Education Psychology, 10, 132-139. *Psychology*, 2019, 10, 132-139. Retrieved from https://file.scirp.org/pdf/PSYCH_2019013116182894.pdf
- Kopp, M. (1994). *Orvosi pszichológia*. Budapest: SOTE Magatartástudományi Intézet.
- Kremer, J. F., & Dietzen, L. L. (1991). Two approaches to teaching accurate empathy to undergraduates: Teacher-intensive and self-directed. *Journal of College Student Development*, 69-75.
- LeDoux, J. (1996). *The emotional brain: The mysterious underpinnings of emotional life*. New York: Simon and Schuster.
- Margitics, F., & Pauwlik, Z. (2006). Megküzdési stratégiák preferenciájának összefüggése az észlelt szülői nevelői hatásokkal. *Magyar Pedagógia*, 106. évf. 1. szám, 43–62.
- Mayer, J.D.; Salovey, P. (1990). "Emotional intelligence". *Imagination, Cognition and Personality*, 185-211.
- Mészáros, A. (2019). *Az érzelmi intelligencia és megküzdési stratégiák vizsgálata pedagógus hallgatók körében*. Pszichológia MA diplomamunka. Kolozsvár: BBTE.
- Molnár, G. (2015). Lifelong learning stratégia szerepe az oktatási és képzési rendszerben Magyarországon. In T. Judit, *Százarcú pedagógia* (pp. 403-409). Komárno: International Research Institute.
- Oláh, A. (1995). Coping strategies among adolescents: A cross cultural study. *Journal of Adolescence*, 18./4, 491–512.
- Oláh, A. (2005). *Érzelmek, megküzdés és optimális élmény. Belső világunk megismerésének módszerei*. Budapest: Trefort Kiadó.
- Petrides, K. V., & Furnham, A. (2001). Trait Emotional Intelligence: Psychometric investigation with reference to established trait taxonomies. *European Journal of Psychology*, 425-448. Retrieved from [http://www.psychometriclab.com/adminsdata/files/EJP%20\(2001\)%20-%20T_EI.pdf](http://www.psychometriclab.com/adminsdata/files/EJP%20(2001)%20-%20T_EI.pdf)
- Preston, S. d. (2002). Empathy: its ultimate and proximate bases. *Behavioral and Brain Sciences*.
- S., H. L., Nadeau, M. S., K., W. L., & Marz, K. (1994). The teaching of empathy for high school and college students: Testing Rogerian methods with the Interpersonal Reactivity Index. *Adolescence*, 29(116):961-74. Retrieved from https://www.researchgate.net/publication/15306035_The_teaching_of_empathy_for_high_school_and_college_students_Testing_Rogierian_methods_with_the_Interpersonal_Reactivity_Index
- Scheusner, H. (2002). Emotional Intelligence Among Leaders and Non-Leaders in Campus Organizations. Retrieved from <https://vtechworks.lib.vt.edu/handle/10919/32134>
- Sternberg, R. (2000). "Models of Emotional Intelligence". In M. J.D., P. Salovey, & D. R. Caruso, *Handbook of Intelligence*. England: Cambridge University Press.

Andrea ÓHIDY

The Jean Monnet Chair Freiburg for European Education (JMC-FrEE)

Introduction

This paper presents the teaching, research, and other activities realized from 2020 to 2023 within the EU-funded Jean Monnet Chair Freiburg for European Education (JMC-FrEE), grant no ERASMUS+ 620072-EPP-1-2020-1-DE-EPPJMO-CHAIR

Background information about the project

Peaceful coexistence and democratic cooperation are central values in a rapidly changing globalized European Union with increasing mobility and migration. Respectful handling of diversity based on human rights and intercultural competence is necessary to keep and intensify the European integration process. Teaching EU studies and diversity/intercultural/minority education at schools to future teachers is vital to achieving these goals. Germany is a long-term member of the EU and an immigration country, having an increasing population with a migration background but an acute shortage of teachers to deal with this changing situation. In Germany, European matters are typically discussed from political, economic and legal perspectives. Issues of European Education are usually included but only sometimes emphasized. The JMC-FrEE project responds to this identified need to develop this field of study in Germany and Europe, discussing these issues from the perspective of social – esp. educational – sciences with a solid didactic perspective. It seeks to enhance the already existing profile of the University of Education Freiburg in European studies in teaching and research by strengthening this profile in the curriculum and deepening it through emphasizing the aspect of "Dealing with Diversity in Education" (particularly in schools and with regards to minority education) in Europe. A particular focus is put on the didactic perspective, dealing with learning and teaching about "Europe" in different school forms and subjects in heterogeneous learning groups.

Aims and objectives of the JMC-FrEE-project

A Jean Monnet Chair is an EU-funded teaching post for university professors specializing in European Union studies. The Jean Monnet Chair Freiburg for European Education (JMC-FrEE) was founded in 2020 to promote basic and in-depth knowledge of European Integration, esp. in European Education. The JMC-FrEE-Chair is based at the University of Education in Freiburg (Pädagogische Hochschule Freiburg) in Southern Germany. It is one of the largest of the six Universities of Education in Baden-Wuerttemberg, located in the border triangle between Germany, France and Switzerland. The university has a multinational tradition in Teacher Training and a focus on European perspectives. It offers research-based qualifications and further qualifications in education for Bachelor, Master, Teacher Training, doctoral and postdoctoral levels. The JMC FrEE team is very heterogeneous: It includes researchers and teachers of every age and in different phases of their professional life (students, young researchers with and without PhD, senior researchers, professors, emeriti) from other European countries (Germany, Hungary, Poland and Lithuania), who work in different scientific (education, sociology, psychology) and educational areas (kindergarten, school education, special needs and inclusive education, teacher training, higher education, further education).

The main objectives of the JMC FrEE project are:

- to provide expert guidance to future educators and teachers about European matters and to prepare them to organize learning and teaching processes in a European context for the education of the next generation of active European citizens, and
- to raise more public awareness for the topic of European Education in and outside the academic world on a national and international level in cooperation with scientists, teachers, civil society actors, policymakers, journalists and school pupils.

To achieve these goals, multidisciplinary teaching activities, research projects and special events in the following areas:

- Europeanization of Education
- Intercultural Education (esp. Multilingual Education) in Europe and
- Education for disadvantaged children (esp. from the Roma minority) in Europe.

Project activities: teaching, research and special events

The JMC-FrEE-teaching activities provide a multidisciplinary perspective of social science disciplines, concentrating on in-depth learning opportunities with a didactic view for prospective teachers and other educational professionals to prepare them for their future professional life. The language of the seminars is English or German. A particular focus is put on the perspective of (subject-specific) didactics, dealing with the question of learning and teaching about "Europe" in different school forms and subjects in heterogeneous learning groups. The pedagogical approach is based on a systematic combination of theoretical and practical experience and a continuous reflection of the participants' convictions and subjective theories. Theoretical and practical experience are systematically linked while personal beliefs and subjective views are reflected upon: Students prepare concrete teaching plans for different school types, classes and subjects and put them into action in other school settings. The reflection of the planning and the implementation stages are realized in cooperation with school teachers.

The "Dealing with Diversity in Education" (particularly in schools and regarding minority education) is especially emphasized. The courses are part of the Certificate Programme "Dealing with Diversity", which has targeted students and teachers interested in additional qualifications for working with diverse classrooms since 2016. Furthermore, the participants can choose a new specialization called "Bildung für Europa" (Education for Europa) alongside Intercultural Studies or Inclusive Education.

The teaching activities plan the JMC-FrEE-research activities. They also focus on the three areas mentioned above on different (BA, MA, doctoral and postdoctoral) academic levels. They involve especially the young generation of researchers and teachers. Students on all levels (especially doctoral candidates) can participate by leading, monitoring and supervising the JMC-FrEE team. Research on European matters in school education is a particular focus.

Most JMC-FrEE-team members are young researchers (esp. doctoral candidates) who teach their particular area of expertise (PhD-topic). Their research output is published in different scientific and non-scientific publications and international research workshops. High-quality student research papers are also included to reflect upon their educational actions with scientific methods.

The JMC-FrEE-special events of the project (such as conferences, roundtable debates and exhibitions) aim to involve local, regional and national, but also international participants, esp. from outside of the academic world, such as members of civil organizations, policymakers and other interested members of the public. Furthermore, they focus on involving school pupils (both as active participants and as audience) of primary and secondary schools in Freiburg, who especially need advanced knowledge and competencies to shape Europe's future.

Target groups and dissemination strategy

The main target groups of the JMC-FrEE project activities are students in teacher training, teachers and school pupils.

Students in teacher training and teachers need to be prepared to organize learning and teaching processes in the European context and to raise active European citizens for the future. Hence the JMC-FrEE project focused on creating, implementing and reflecting didactical materials regarding EU matters for schools, teacher training and continuing teacher education.

Local students (esp. of the University Education of Freiburg) are actively involved in the project, for example, by creating different materials (student research papers, didactic materials) and events (radio programmes, exhibitions).

A particular target group are school pupils in primary and secondary schools, who are involved through activities in cooperation with students and teachers, being addressed in didactic seminars and special events (exhibition). In many circumstances, pupils are not only the audience but also the creators.

Furthermore, the project targets all public members – on national and international levels – who are interested in the topic. In addition, local public members are involved in the project through cultural events (roundtable debates), which will deal with the issue in a non-scientific way.

The dissemination and exploitation strategy of the JMC-FrEE-project is based on the intention to reach out to a broad, heterogeneous audience (scientific and non-scientific, local, regional, national and international, people of different ages, professions, positions/states of life, speaking other languages, reading and non-reading). Hence all events and materials of the project are free – personally or virtually – accessible to everyone. Furthermore, to publish the project activities and results, open educational resources are used, combining traditional (book, radio) and computer-based multimedia tools (video blog), scientific (research papers) and non-scientific (exhibitions) publication methods in German and English.

The project website is the central platform to connect and document all activities and products. It guarantees visibility and makes it possible for everyone interested to participate, even if it is impossible to do it in person. All other publication platforms, although also separately accessible, are linked to the central platform.

Although the teaching events primarily target students of the PH Freiburg, they are open to students of other higher education institutions, and some are open to teachers. The participating students and teachers disseminate their knowledge in schools.

Most special events – such as "Freiburg Discussions about European Education" – target a broad audience, reaching out to as many people as possible, esp. political stakeholders.

The project's exploitation strategy concentrates on non-scientific people and younger generations. To mainstream and multiply the actions and results, it uses selected social media (Facebook, Twitter, Instagram) and has its own Youtube education channel and a video blog. The project's social media platforms (website, radio programme, video blog) are mostly bilingual (German and English).

Results

The JMC-FrEE-project will end in August 2023 with the following output and outcomes:

- 30 learning offers (lectures, seminars, intensive courses, guest lectures) in German and in English for students, teachers and pupils;
- 12 special events: international research workshops, roundtable debates with national and international experts, exhibitions, students' and pupils' performances and study visits;
- 7 research activities, including free scientific publications (books, articles, special issues, research papers) and free didactic materials (for primary and secondary schools and teacher training).

The planned significant impact of the project is to increase interest and knowledge about EU matters and to develop intercultural competence of students in teacher training, of teachers and school pupils, but also of a broader national and international audience.

For optimum use of the project results, it is planned to continue as many of the teaching and research activities as possible after the project lifetime and to try to influence political stakeholders to implement the results and thereby change the education situation – e. g. of the Roma minority – for the better.

Further information:

- JMC-FrEE-Homepage: www.ph-freiburg.de/jmc-free
- Youtube-Channel: https://www.youtube.com/channel/UCQgEk3Gkh7R_cBLxvFbK0IQ
- Facebook: <https://www.facebook.com/jmcfreeprojekt>
- Twitter: https://twitter.com/free_jmc
- Instagram: https://www.instagram.com/projekt_jmc_free/.

Anikó KÁLMÁN

The methodology of educational informatics in higher education¹

Based on the subtitle of the publication, the handbook was prepared as part of the "Educational Informatics in Higher Education" research.

The backbone of the book is a study by the EU Joint Research Center (Redecker, C., 2017). European framework for the digital competence of educators: DigCompEdu (JRC107466).

Based on the title of the book, we could think of an educational informatics manual – there are many domestic and international publications of this genre, which mostly approach the field along theoretical-technical-organizational guidelines, most of the time as a fair masterpiece. Distance learning, open training, online, e-learning – even the diversity of terminology indicates the lack of a consolidated professional-academic-scientific agreement – there is only a partial result of decades of efforts to establish a scientific discipline in its own right. This is reflected in a good sense by the creative diversity of the book and the interviews, the use of terms, and the explanation of the connections.

The publication defines the volume as a "research paper". In fact, this may satisfy the criteria for defining the approach – whilst the result of the work is certainly more valuable and useful than a research report – whose stricter criteria the publication basically meets. In any case, we can speak of a very significant Hungarian publication that fills the gap, which professionally and realistically brings the reader close to a much-discussed, explained still-searching scientific and professional field. It helps to understand the discipline's messages, possibilities, connections, realities, keywords, and follows the scholarly and practical structure and elements of the learning innovation profession. It uses the pedagogic-educational science approach and terminology in a sober way, organically connected with the presentation and examples of the actual practice. It does not have an encyclopedic approach, but it is coherent and mostly easy to read.

The "Methodology of Educational Informatics in Higher Education" is an important step in the process of integrating digital-online learning and educational innovation in Hungary. The multitude of development programs and projects implemented – mostly from EU sources – have been providing countless lessons, professional-scientific and practical help to the teachers' community, the summary and accessible presentation of which is a great value and step forward based on the Károli University publication. It provides an interesting and authentic introduction to the basics of digital education innovation, presents the main concepts and connections, the arenas of digital education, and at the same time provides academically authentic derivations and structured contextualization.

The volume does not refer to the historical approach that is often considered mandatory, its line of thought follows the pragmatic, professional and, moreover, certainly demanding approach of "academic and professional" digital education. With its systematic and scholarly high value resources quoted, it also serves as an information and knowledge base and builds on progressive, innovative items and concepts, reaching its useful and valuable conclusions.

The questions raised along the volume, that serve as the backbone of the publication are coherent, notwithstanding in some cases use an administrative-formal wording – especially when compared to similar parts of the material that are more dynamic and substantive.

An important value of the book – which can be in particular experienced in the online version – is that in several themes, advice, and comments of the highly competent and erudite experts have been elaborated and presented as professionally edited and contentful videos. The knowledgeable speakers who appear, the short essay-like lectures, contribute greatly to the understanding, acceptance, and reflection of the various situations, the visualization and understanding of the variety of possibilities,

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and inspiration for their application. The video materials provide plenty of advice, and practical/everyday information that would be difficult to deliver in writing, or obtain in other contexts. The reader receives advice on the operation of the specific digital environments, which are otherwise difficult to understand and master.

The questions asked to the experts are mostly very good – in a small part slightly didactic – and they help to develop and define a relevant, organic functional-operative-analytical framework. They summarize well the presentation of the extended possibilities and connections of the digital device and network system, and the rapidly changing challenges of harmonizing the different user levels.

The experts give meaningful answers to the questions, breaking away from linear reflections, opening up the diversity of solutions and advancement possibilities and authentically presenting the possible role of the digital support.

Although many efforts, attempts, often fragmented developments and innovations are known and receive publicity at educational science conferences, presentations, and publications, the possibilities come to life concentrated here in the KRE publication. Going beyond the otherwise excellently presented topics, knowledge and practical implementation of digital learning and competences, it effectively indicates the processes of learning, teaching, knowledge acquisition and feedback, beyond institutional and school structures.

The book's approach reflects the flexibility with regard to digital devices and networks, which the slowly consolidating practice and pragmatic activities help and encourage to identify and integrate new things.

It is worth of emphasizing the book's practical approach. The education innovation and digital endeavors and attempts that have been realized for a long time, contingently, mostly island-like, on project basis, are given a new interpretation and approach. Often in critical context – recognizing that doubt is an important element of the application of digital culture – experiences, passions, deep knowledge, authentic situations and results come to life. We better understand what happens in these different, diverse developments, how ideas are created and implemented.

The contributors to the volume share their daily acquired skills, thus the publication creates knowledge in practice.

The possibilities of creating and using online digital tools, content, advice, instructions, and the ways of conveying the much created knowledge are emphasized with unusual relevance – focusing on: what will the students actually need? Keeping the users' perspectives and the training goal in focus results in comprehensible and encouraging material.

An important factor helping the processing and acceptance of the book is that professionalism and authenticity are present throughout. The knowledge material presented in this way is more effective, authentic and interesting than the usual linear interpretation of case studies and best practices. It provides important and reinterpreted advice on teaching and learning methodology, not only in the digital environment but also adds to our knowledge in the changing socio-economic and labor market context.

Meta aspects such as motivation, student freedom, the importance of feedback, and the clarification of abstract concepts are presented. Essential messages in digital learning are emphasized, such as "personality, the most important attraction of contemporary social media", spontaneity, immediacy.

Among the bottlenecks, it should be mentioned that the book barely touches on the unfortunately permanently present language problem for many teachers, which is a permanent limitation in relation to the literature and good practices that can be applied.

Éva FARKAS

Honoring outstanding professionals who passionately believe in the power of adult and continuing education and learning



Introduction

It is widely acknowledged that lifelong learning, including adult learning and education (ALE), is fundamental to achieving the UN 2030 Sustainable Development Goals (SDGs) (United Nations, 2015) and to implementing and enforcing the principles and rights contained in the European Pillar of Social Rights (European Commission, 2021). The Marrakech Framework for Action (MFA) once again acknowledged that education, including ALE, is a human right that is critical to the exercise of other rights and the achievement of the SDGs more widely (UNESCO Institute for Lifelong Learning, 2022. p. 3.).

The MFA also reaffirmed that “adult learning and education (ALE) is a key component of lifelong learning, noting that ALE policies and practices apply to a wide range of ages, education levels, learning spaces and modalities, and recognizing that lifelong learning is the major engine of a learning society at different levels, involving individuals, families, organizations, workplaces, neighbourhoods, cities, and regions” (UNESCO Institute for Lifelong Learning, 2022. p. 3.). Regardless of the policy documents, our everyday practice and experience demonstrate that ALE is present in all spheres of life, societal contexts, and economic sectors. It might be claimed that (adult) learning is essential to life. And without ALE, transformation is impossible.

The implications of the global megatrends we face on a daily basis, including but not limited to industry 4.0, digitalization, an ageing society, the climate crisis, migration, COVID, wars, and the limitation of human rights, are fundamentally changing our lives, work, and relationships. And in light of these circumstances, ALE should be essential, more potent, and widespread than ever in the pursuit of justice, well-being, and change, ensuring that all adults have equal opportunity for inclusive and equitable quality learning. By mobilising people's transformational capacities, ALE can help them become agents of change rather than passive beneficiaries.

Thanks to the dedication and hard work of numerous excellent professionals and organizations, after a long time, we have finally reached the point where ALE is no longer a side branch of formal education and not a subordinate to the monopoly of formal education, but a critical and indispensable component of global education policies and skills development agendas. We have a moral obligation to recognize outstanding individuals and organizations that have made significant contributions to ALE, which is one of the fundamental pillars of society and is responsible for the continuous renewal and enhancement of the knowledge and competencies necessary for socio-economic progress. This is the mission of the International Adult and Continuing Education Hall of Fame (IACEHOF), which honors distinguished individuals and organizations that believe passionately in the power of learning and have devoted their professional lives to adult and continuing education.

History and purpose of the IACE Hall of Fame

The IACE Hall of Fame was founded following discussions that began in the mid-1980s. Dr Thurman J. White (US) is universally acclaimed as the founding father of the Hall. It was because of White's vision

and his realization of the need that a system was established to recognize and honor, in perpetuity, living and deceased educators of adult and continuing learning who had distinguished themselves as scholars, practitioners or policy-makers. The IACE Hall of Fame was formally established as a nonprofit corporation in 1993. Dr White served as the first chair of its Board, and the University of Oklahoma College of Continuing Education in the United States agreed to serve as the permanent home for the Hall. Dr James Pappas (US) has been the Hall's executive director since its start and he is credited with bringing the Hall to fruition.

The first induction ceremony into the IACE Hall of Fame was held in 1996, marking a significant milestone in the history of twentieth-century ALE. Since the first induction in 1996, 404 members from all over the world have been inducted into the Hall of Fame. As of 2022, the number of living members is 293.

The mission of the IACE Hall of Fame is to honor and recognize scholars, researchers, practitioners, and policy-makers who have excelled in the field of adult and continuing education, to serve as a record and inspiration for the next generation of continuing education leaders, and to raise awareness of the values and achievements of ALE.

The IACE Hall of Fame is a nonprofit organization. There are no fees or duties. The organization relies on gifts and tax-deductible contributions to sustain its activities and ensure its perpetuity.

The organization is managed by a four-member Executive Committee and a thirteen-member Board of Directors, with seven members from the United States, three from Europe, and one each from Asia, Australia, and Canada. In addition, the Development Committee, the Communication Committee, and the Nomination Committee support the work of the Hall.

One of IACE Hall of Fame's functions is to coordinate nominations and inductions of new members. Furthermore, the most common activities include communicating and disseminating information, collaborating with relevant stakeholders in the field of adult and continuing education, hosting webinars and seminars, publishing studies, and awarding the James Pappas scholarship to a graduate student majoring in a field related to adult and continuing education. Through a quarterly newsletter, IACE Hall of Fame keeps its members and stakeholders up to date on the latest news of the Hall. The latest issue was dedicated to the 2022 induction ceremony held in Cork, Ireland.

The IACE Hall of Fame European Chapter

Following several international meetings, a subgroup was founded in Europe in 2016, known as the International Adult and Continuing Education Hall of Fame, European Chapter (HOFE). HOFE has 71 members, and the number of living members is 57. Permit me to point out, as a Hungarian, that seven of the 71 European members are from Hungary (János Sz. Tóth, Dénes Koltai, Mihály Sári, Andor Maróti, Balázs Németh, Éva Farkas, András Benedek).

Since its founding, the European Chapter had been co-chaired by André Schläfli (Switzerland) and Sturla Bjerkaker (Norway), who were succeeded in September 2022 by Arne Carlsen (Denmark) and Éva Farkas (Hungary). HOFE holds three virtual meetings and one in-person meeting every year. Through its Think Tank function, HOFE hopes to operate as a hub for networking and information exchange, as well as actively contribute to the development of European adult learning policy and the implementation of initiatives. HOFE is open to collaborating with organizations in the field of adult education through joint research projects, organizing conferences, seminars, and webinars, mentoring young researchers, and interacting with other European ALE organizations. HOFE is also committed to discussing and disseminating information about new developments in ALE, such as the European agenda for adult learning 2021-2030 and CONFINTEA VII Marrakech Framework for Action.

The European colleagues actively participate in the organizational activities of the IACE Hall of Fame. There are three European members in the 13-member Board of Directors: Simona Sava (Romania), Éva Farkas (Hungary) and George A. Koulaouzides (Greece). The Nomination Committee currently had two European members, Alan Tuckett (United Kingdom) and Sturla Bjerkaker (Norway), who succeeded André Schläfli (Switzerland) and Ekkehard Nuissl (Germany) in 2022. It is also a pleasure and an honor

that Éva Farkas (Hungary) was elected as the new Chair of the Board of Directors of IACE Hall of Fame in September 2022 who succeeded James Anderson (US).

Nominations

The IACE Hall of Fame rewarded only individuals until 2020. A person must be eminently distinguished in their profession, have achieved honor or distinction, and have contributed to the heritage of adult and continuing education be eligible for induction into the Hall of Fame. Each year, three categories (scholar, practitioner, and policy-maker) are open to nominate professionals who have made outstanding contributions to the field of adult and continuing education and have had a decisive impact on, including but not limited to, developing and implementing adult and continuing learning policies and initiatives, improving quality of the practice, enhancing andragogy as an integrated part of education sciences, raising the visibility and recognition of adult learning and professionalization of adult educators, and educating the next generation of adult learning professionals.

Anyone can nominate individuals and organizations for the award. Each nomination requires two nominators, and at least one of them must be an IACEHOF member. All submitted nomination packets are forwarded to the Nomination Committee, which is appointed by the Board of Directors. The Nomination Committee is responsible for screening and scoring nominees based on pre-defined and publicly available strict professional criteria as well as recommending to the Board of Directors a slate of suitable inductees. The Board of Directors then reviews, discusses, and, as appropriate, approves the Committee's recommendations for induction.

The Hall of Fame's commitment to lifelong learning is exemplified by the organizational award established in 2020. The award is intended for organizations whose mission reflects opportunities for adult and continuing education by promoting the growth and development of adult learners and whose vision is dedicated to the idea that adult and continuing education contributes to human fulfilment and positive social change.

The next nomination period will be in spring 2023. The call for nominations will be published on the IACEHOF and HOFE websites and will be distributed to partner organizations.

Inductions

Annual induction ceremonies have taken place at various locations around the world. These annual inductions are always held in conjunction with conferences of international associations representing adult and continuing education. A significant milestone in the internationalization process was the induction ceremony held for the first time in Europe in 2006 in Bamberg, Germany. This event was followed by ceremonies in several European cities over the years, including Budapest (Hungary) in 2008, Iasi (Romania) in 2014, and Belgrade (Serbia) in 2019. The most recent 26th induction ceremony was held in Cork, Ireland, on 28th September 2022. The induction ceremony is always special. This year's event, where we welcomed 18 exceptional adult learning professionals from 11 countries, was once again an exquisite, magnificent, and uplifting occasion. Due to COVID-19, the induction ceremony in 2021 had to be postponed. Since the award can only be received in person, carry-overs from the 2021 class were also included in the 2022 class, making this one of the largest classes ever. This class is also particularly noteworthy because of its international diversity.

For the first time in the history of the International Adult and Continuing Education Hall of Fame, an organization, the Irish National Association of Adult Education (AONTAS) was inducted into the Hall.

The next induction ceremony is scheduled to coincide with the annual conference of the American Association for Adult and Continuing Education (AAACE) in Lexington (US) in October 2023.

The International Adult and Continuing Education Hall of Fame Class of 2022



From left to right: Niamh O'Reilly (Ireland), Mejai Avoseh (USA), Dearbháil Lawless AONTAS Ireland (organization award), Sabine Schmidt-Lauff (Germany), Larissa Jogi (Estonia), Licinio Lima (Portugal), Andras Benedek (Hungary), Laura Bierema (USA), Rolf Arnold (Germany), Michael Osborne (UK), Darlene Clover (Canada), Nancy Taber (Canada), Daphne Ntiri (USA), Robert Mizzi (Canada), Wing On Lee (Singapore), Séamus O'Tuama (Ireland), Linda Morris (USA), Per Paludan Hansen (Denmark), Raul Valdes Cotera (Mexico).

The induction ceremony is a wonderful event, and the symposium, at which all new inductees talk about themselves, their careers, their beliefs, and their relationship with adult and continuing education, is the most exciting and meaningful part of the day. The symposium provides an excellent opportunity to witness cultural diversity and varied approaches to adult and continuing education, as well as to meet distinguished colleagues who have dedicated their professional life to adult education and who, because of their professionalism, commitment, and humaneness, will serve as role models for the next generation of adult education professionals and researchers. The outstanding legacy of these people is preserved in a permanent display of plaques in the International Adult and Continuing Education Hall of Fame on the University of Oklahoma campus.



References

- European Commission (2021). *The European Pillar of Social Rights Action Plan*. Available at: <https://ec.europa.eu/social/BlobServlet?docId=23696&langId=en> (Accessed: 5 December 2022)
- UNESCO Institute for Lifelong Learning (2022). *CONFINTEA VII Marrakech Framework for Action: harnessing the transformational power of adult learning and education*. Available at: <https://unesdoc.unesco.org/ark:/48223/pf0000382306> (Accessed: 5 December 2022)
- United Nations (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*. Available at: <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf> (Accessed: 5 December 2022)
- *International Adult and Continuing Education Hall of Fame homepage*. Available at: <https://halloffame.outreach.ou.edu/> (Accessed: 5 December 2022)
- *International Adult and Continuing Education Hall of Fame European Chapter homepage*. Available at: <http://www.hofe.andragogy.net> (Accessed: 5 December 2022)
- *26th Induction Ceremony Program Brochure*. Available at: https://halloffame.outreach.ou.edu/media/filer_public/db/e0/dbe0625c-6988-435d-aed8-f2f85f749326/181022-program_hall_of_fame_continuing_education_10-24-22_1.pdf (Accessed: 5 December 2022).