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Abstract. *STEM COIL (Science, Technology, Engineering, and Mathematics Collaborative Online International Learning) is an emerging research and education area. This research was enabled by the research question: Is the STEM COIL model designed right? The work aim is to verify the STEM COIL model underpinning the evaluation of the pilot study carried out in Latvia. Descriptive study was deployed. Observational method of the descriptive study was carried out in Latvia in April 2024. Collected data were processed via content analysis. The obtained results were interpreted. The novelty of this research is represented by the STEM COIL model verification based on results of the pilot study carried out in Latvia. The findings of the descriptive study reveal that the STEM COIL implementation coincide with the STEM COIL theoretical model. In other words, the elements of the STEM COIL performed their function in the intended way. The analysis of the pilot study carried out in this work allows concluding that the STEM COIL model has been verified as the STEM COIL elements performed the intended function in the course of the implementation of the pilot study carried out in Latvia in April 2024. Consequently, STEM COIL provides opportunities for STEM learners who wish to improve their STEM knowledge, increase their inclusiveness and equity in society in general and STEM education specifically.*

Keywords*: COIL (Collaborative Online International Learning), descriptive study, equity, inclusion, pilot study, STEM (Science, Technology, Engineering, Mathematics) education, model verification.*

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Introduction

Currently, all spheres of our life are being digitized, digitalized, automated, and robotized in order to ease people life. Digitized, digitalized, automated, and robotized gadgets are supposed to make Europe climate neutral, thereby contributing to our sustainable development and greener future (Zascerinska, Emet, Usca, & Bikova, 2023).

Leveraging and advancement of these trends of digitisation and digitalisation, automation, as well as robotisation require everyone participation (Zascerinska, Emet, Usca, & Bikova, 2023). Everyone - being user or developers of digitized, digitalized, automated, and robotized gadgets – needs to obtain specific knowledge, also known as STEM education. It should be noted that everyone's inclusion in STEM education is crucial (Zascerinska, Aleksejeva, Zascerinskis, & Abjalkiene, 2022) for reaching the objectives of green and digital transformation. Therefore, STEM education is becoming the linchpin in the educational system of any country.

Conventionally, STEM knowledge in any type of education is exchanged in a face-to-face class (Zascerinska et al, 2021). However, the COVID-19 pandemic has motivated mixed class teaching, also known as hyflex (hybrid flexible) class teaching (Aleksejeva, et al, 2021). One of the scenarios of hyflex class teaching was identified to be Collaborative Online International Learning (COIL) (Zascerinska et al, 2022). Therefore, STEM COIL classes have

been introduced into education. However, there is a lacuna in STEM COIL model verification.

The present research was enabled by the research question: Is the STEM COIL model designed right? The aim of this work is to verify the STEM COIL model underpinning the evaluation of pilot study carried out in Latvia.

The current work refers to qualitative research. Descriptive study was deployed in this work. Observational method of the descriptive study was carried out in Latvia in April 2024. The collected data were processed via content analysis. The obtained results were interpreted.

The novelty of this research is represented by the STEM COIL model verification based on results of the pilot study carried out in Latvia.

STEM COIL Theoretical Framework

STEM COIL consists of two concepts (STEM COIL, 2021):

1. STEM, and
2. COIL.

STEM acronym was introduced in 2001 (Hallinen, 2024). STEM refers to Science, Technology, Engineering and Mathematics (Zaščerinska, Andreeva, & Aleksejeva, 2015). They can also be defined as educational disciplines (Zascerinska, Aleksejeva, Zascerinskis, & Abjalkiene, 2022). The educational discipline relates to the subject knowledge (Zascerinska, Aleksejeva, Zascerinskis, & Abjalkiene, 2022). Subject knowledge is advanced, exchanged, transmitted, and transferred in the educational process implemented in three logical and sequential phases (Zaščerinska, 2013) as shown in Figure 1.

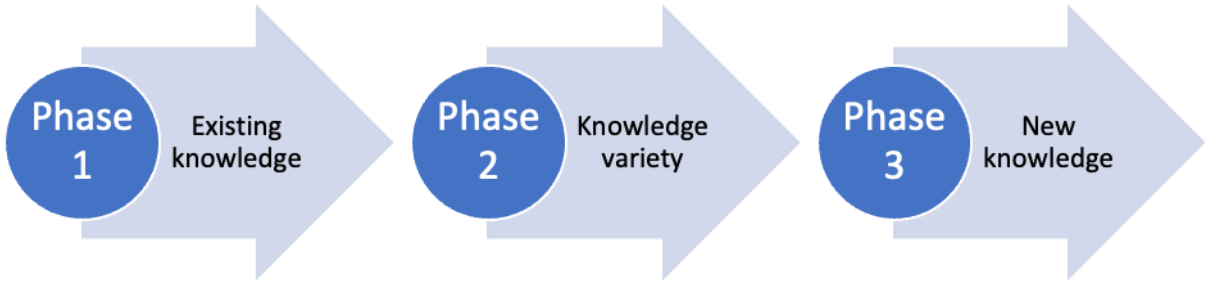

Figure 1 ***Phases of STEM knowledge exchange in education*** *(the authors)*

Conventionally, STEM knowledge in any type of education is exchanged in a face-to-face class (Zascerinska et al, 2021). However, the COVID-19 pandemic has motivated mixed class teaching, also known as hyflex (hybrid flexible) class teaching (Aleksejeva et al, 2021). One of the scenarios of hyflex class teaching was identified to be Collaborative Online International Learning (COIL) (Zascerinska et al, 2022).

It is worth noting that the COIL model appeared in the early 2000s (SUNY COIL, 2024). COIL has been at the forefront of empowering teachers and trainers, learners, programs and institutions to embrace diversity through inclusive teaching and learning focused on equity while connecting through difference (SUNY COIL, 2024). COIL provides a means to (SUNY COIL, 2024):

- Develop intercultural awareness and communicative competencies, cost effectively and at scale;
- Encourage appreciation for diverse backgrounds and perspectives;
- Broaden and strengthen students' understanding of the discipline studied through applied projects and discussions;

- Advance the use of technology tools for collaboration, communication and learning;
- Prepare students to work in a multi-cultural and connected world.

In COIL scenario, students and teachers in different countries are connected for collaborative projects and discussions as part of their coursework (Zascerinska et al, 2022). Table 1 adapted from Zascerinska et al (2022) specifies the COIL scenario.

Table 1 ***COIL scenario in a hyflex class*** *(the authors)*

Scenario	Teacher	Student	Language of instruction
COIL	A couple of teachers from different countries	Students are from at least 2 countries, each of 2 students' groups is in the campus class, these 2 students' groups are connected via the Internet.	An international language is used for both teachers' and students' communication in the COIL class

In 2021, the fusion of STEM and COIL took place (Zascerinska et al, 2022). The new development model received the name STEM COIL (STEM COIL, 2021). Table 2 gives an overview of the STEM COIL model development in a historical perspective.

Table 2 ***A historical perspective on STEM COIL model development*** *(the authors)*

Nr	Phenomenon	Historical period	Reference
1	STEM	2001	Hallinen, 2024
2	COIL	2000s	SUNY COIL, 2024
3	STEM COIL	2021	STEM COIL, 2021

Figure 2 present the STEM COIL model in education (Zascerinska et al, 2022). Relationships between the key elements of the STEM COIL model are demonstrated in Figure 2 as well.

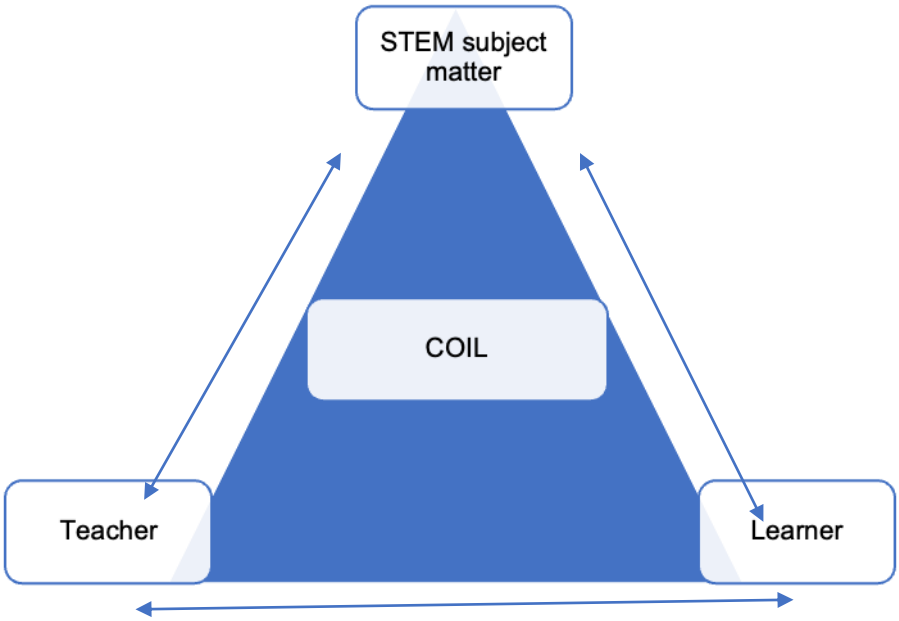

Figure 2 ***STEM COIL in education*** *(the authors)*

Based on the analysis of the STEM COIL model carried out in this work, the key characteristics of STEM COIL are reflected in Table 3.

Table 3 ***Key Characteristics of STEM COIL implementation*** *(the authors)*

Phenomenon	Key characteristics
STEM COIL	STEM knowledge
	Inclusion
	Equity

Table 4 details characteristics of STEM COIL implementation in education.

Table 4 ***Characteristics of STEM COIL implementation*** *(the authors)*

Phenomenon	Key characteristics	A short description	Reference
STEM COIL	STEM knowledge	Use of STEM disciplines	Zascerinska et al, 2022
	Inclusion	A couple of teachers from different countries	Zascerinska et al, 2022
		Students are from at least 2 countries	Zascerinska et al, 2022
		Each of 2 students' groups either in the campus class or online	Zascerinska et al, 2022
	Equity	These 2 students' groups are connected via the Internet	Zascerinska et al, 2022
		An international language is used for both teachers' and students' communication in the COIL class	Zascerinska et al, 2022

STEM COIL is an emerging research and education area. The use of STEM COIL in education intends to increase STEM knowledge, social impact and inclusion.

Methodology of the Research

The study was enabled by the research questions: Is the STEM COIL model designed right?

The purpose of the empirical study was to verify the STEM COIL model via the implementation of the pilot study in Latvia.

Model verification is an important step in model development (Thacker et al, 2004). Verification confirms that all elements of the system perform their intended functions and meet technical (performance and operational context) and interface requirements and constraints (i.e., the product was built right) (Hahn, 2013). In other words, verification is intended to ensure that the model does what it is intended to do (Hillston, 2003). Testing is a method of model verification in engineering, while in social sciences it is called pilot studies (Hahn, 2013).

Model development and verification via analysis of pilot studies refer to qualitative research in this work (Ahrens et al, 2023).

The descriptive study was deployed in this work. Descriptive studies can be also used for verification purposes (Rott, Specht, & Knipping, 2021). Descriptive study takes place in natural settings. No any manipulation within the descriptive study is intended. Conventionally, descriptive study aims at describing a situation for better understanding a

phenomenon. This type of the research was chosen as there exist a lacuna in the verification of the STEM COIL model.

The descriptive study was carried out online on 10 April 2024. About 190 participants took part in this online event. The audience included researchers in STEM, education and other scientific disciplines, higher education students, academic staff of Latvia's higher education institutions, a representative of a regional museum in Norway. The online event was devoted to STEM in Latvia. Four STEM centres in four cities of different regions of Latvia - namely Liepaja, Daugavpils, Ventspils, and Cesis - were presented to the audience.

The method of observation was leveraged for qualitative data collection. Observation serves as an effective method in obtaining qualitative data (Zascerinska, 2013). Observation helps build an adequate picture described from a number of participants' perspectives (Geertz, 1973). A researcher was the participant of the group in which STEM COIL was implemented in Latvia in April 2024. Observation with the participation of a researcher is beneficial (Hargreaves, 1967). This direct participation in the group permits an easy entrance into the social situation by reducing the resistance of the group members; decreases the extent to which the investigator disturbs the 'natural' situation, and allows the investigator to experience and observe the group's norms, values, conflicts and pressures, which (over a long period) cannot be hidden from someone playing an ingroup role (Hargreaves, 1967).

The collected qualitative data were processed via content analysis. The types of content analysis were structuring and summarising analysis (Mayring, 2000) as illustrated in Table 5.

Table 5 ***Types of content analysis used in the descriptive study*** *(the authors)*

Method	Type of the method	A Short description	Reference
Content analysis	Structuring content analysis	Categorising the data in accordance to the previously determined criteria	Budde, 2005
	Summarising content analysis	Reducing the material in such a way that the essential contents are preserved, but a manageable short text is produced	Mayring, 2004

The obtained results were interpreted.

The use of the interpretive paradigm in this study is featured by the researcher's interest in a phenomenon (Zaščerinska, Aleksejeva, Zaščerinskis, Gukovica, & Aleksejeva, 2021) and the researcher's practical interest in the research question (Cohen, Manion, & Morrison, 2003). Interpreter is the researcher who carries out the research or study (Ahrens, Purvinis, Zaščerinska, Micevičienė, & Tautkus, 2018).

Paradigm, in general, indicates movements within social science (Phothongsunan, 2010) in general and social science's studies in particular. Interpretivists use more open-ended research questions (Phothongsunan, 2010). The main focus is on qualitative data (Phothongsunan, 2010) as qualitative data analysis could show slightly recognisable changes in a studied environment. Interpretive studies often use small numbers of participants (Phothongsunan, 2010). This is because the purpose is not to generalise (Phothongsunan, 2010), but to explore the meanings which stem from the interpretation (Zaščerinska, Aleksejeva, Zaščerinskis, Gukovica, & Aleksejeva, 2021). Therefore, interpretation encompasses the analysis of the social construction of the meaningful reality (Zaščerinska, Aleksejeva, Zaščerinskis, Gukovica, & Aleksejeva, 2021).

The studied environment was multicultural:

- On the one hand, participants were from Latvia and Norway, and
- On the other hand, participants from Latvia represented different cultures of four cities in different regions of Latvia - namely Liepaja, Daugavpils, Ventspils, and Cesis.

Therefore, the interpretive method was used in this study aimed at understanding other cultures, from the inside through the use of ethnographic methods such as informal interviewing and participant observation, and establishment of ethically sound relationships (Taylor & Medina, 2013). The interpretive research paradigm corresponds to the nature of humanistic pedagogy (Lūka, 2008). The interpretive paradigm creates an environment for the development of any individual and helps them to develop their potential (Lūka, 2008). The core of this paradigm is human experience, people's mutual everyday interaction that tends to understand the subjectivity of human experience (Lūka, 2007). The paradigm is aimed at understanding people's activity, how a certain activity is exposed in a certain environment, time, conditions, i.e., how it is exposed in a certain socio-cultural context (Lūka, 2007). Thus, the interpretive paradigm is oriented towards one's conscious activity, and it is future oriented (Lūka, 2007).

Research Results

At the event beginning, the audience was addressed by the Minister from the Latvia's Ministry of Education and Science and, later by the Director of Latvia's State Education Development Agency. Both of them used Latvian language to deliver their messages.

Afterwards, a representative from a regional museum in Norway described key activities of his institution. After the presentation, a short task related to STEM disciplines was given to the audience. The speaker used English language. Translation into Latvian language was provided by the event organisers. A volunteer, who took part in the short task did not need any translation as she understood the presenter using English.

Then, four STEM centres in four different cities of different regions of Latvia - namely Liepaja, Daugavpils, Ventspils, and Cesis - were presented to the audience. The presentations were given in Latvian.

The content analysis was used to compare the theoretical model of STEM COIL with its testing in natural settings within the event organised in Latvia in April 2024. Table 6 reflects the results of the comparative analysis.

Table 6 ***Comparative analysis of the theoretical model of STEM COIL and results of its testing*** *(the authors)*

Pheno-menon	**Key characteristics**	**Short description**	**Theoreti-cal model YES/NO**	**Practical implementation YES/NO**	**Observational notes**
STEM COIL	STEM knowledge	Use of STEM disciplines	YES	YES	STEM in Latvia was discussed online in an international group
	Inclusion	A couple of teachers from different countries	YES	YES	A number of teacher higher than two from two or more countries was reached
		Students are from at least 2 countries	YES	NO	Only students from Latvia participated in the event
		Each of 2 students' groups either in the campus class or	YES	YES	Observation showed that the participants, including teachers

		online			and students, took part in the event online
	Equity	These 2 students' groups are connected via the Internet	YES	YES	All the participants were online via the wire, wireless, or mobile Internet
		An international language is used for both teachers' and students' communication in the COIL class	YES	YES	English as an international language was used for the online communication

The findings of the descriptive study reveal that the STEM COIL implementation coincide with the STEM COIL theoretical model. In other words, the elements of the STEM COIL performed their function in the intended way.

Discussion

STEM COIL is a novel teaching and learning methodology in the field of STEM education.

STEM COIL can be expressed in a variety of such forms as written text, painting, drawing, photograph, verbal, body language and others (Zaščerinska et al, 2016).

The use of an international or any other common language for communication in STEM COIL can be easily facilitated by many contemporary technical tools such as DeepL, Google Translate, and similar exist.

Learners' benefits from STEM COIL are

- STEM knowledge is exchanged via modern online and intercultural tools.
- STEM COIL facilitates the increase in STEM learners' motivation to learn STEM via their online involvement in international STEM education.
- STEM COIL serves to provide STEM learners' equity as COIL connects learners from different countries (with high and low GPD countries, from remote areas, industrial and agricultural regions, developing and developed states, etc). STEM COIL helps learners become aware of STEM education in their own and other countries, thereby building and cementing STEM learners' equity.

Conclusions

The analysis of the pilot study carried out in this work allows concluding that the STEM COIL model has been verified as the STE COIL elements performed the intended function in the course of the implementation of the pilot study carried out in Latvia in April 2024. Consequently, STEM COIL provides opportunities for STEM learners who wish to improve their STEM knowledge, increase their inclusiveness and equity in society in general and STEM education specifically.

The presented research was limited by the available scientific works and empirical analysis of STEM COIL. As STEM COIL is a novel teaching and learning methodology, the available publications on STEM COIL are scarce. Another limiting parameter is that, in the STEM COIL pilot study, students only from Latvia participated. Despite the fact that only students from one country participated, the STEM COIL model was found to be verified.

Another limiting factor was the analysis of only one STEM COIL event organised by one country. If more empirical studies are published, then, other results could be received. The research findings were also limited by the use of only observational method for data collection. Use of online survey could provide the researchers with other results.

In future, the presented theoretical model of STEM COIL can be updated with more and other elements and features. The list of STEM COIL benefits could be re-considered as well. In future, STEM COIL model validation will be implemented. Future empirical studies intend to analyse the implementation of STEM COIL in different educational levels (primary, secondary, higher, adult, etc). Cultural aspects of STEM COIL implementation could be also an interesting research field in future. Comparative studies of STEM COIL implementation could motivate STEM teachers for leveraging COIL in STEM education.

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References

Ahrens, A., Purvinis, O., Zaščerinska, J., Micevičienė, D., & Tautkus, A. (2018). *Burstiness Management for Smart, Sustainable and Inclusive Growth: Emerging Research and Opportunities.* IGI Global. DOI: 10.4018/978-1-5225-5442-4.

Ahrens, A., Zascerinska, J., Bikova, A., Aleksejeva, L., Zascerinskis, M., & Gukovica, O. (2023). A New Development Model of Sustainable Communication for Higher Education Institutions. *Education. Innovation. Diversity*, *2*(6), 30-48. DOI: https://doi.org/10.17770/eid2023.1.7175

Aleksejeva, A., Zascerinskis, M., Abjalkiene, I., Gukovica, O., Zascerinska, J., & Ahrens, A. (2021). Teaching a HyFlex Class: Scenario Design. *XX Scientific and Practical Conference for Young Educational Researchers "Research That Improves Education"* by Educational Research Association State University of Psychology and Education, 457-467.

Balci, O. (2012). A life cycle for modeling and simulation. *Simulation*, *88*(7), 870-883. DOI: https://doi.org/10.1177/0037549712438469

Budde, R. (2005). *Mexican and Central American L.A. Garment Workers: Globalized Industries and their economic constraints*. LIT Verlag Münster.

Cohen L., Manion L., & Morrsion K. (2003). *Research Methods in Education*. London and New York: Routledge/Falmer Taylor & Francis Group.

Geertz, C. (1973). *The Interpretation of Cultures*. London: Hutchinson.

Hahn, H. A. (2013). The Conundrum of Verification and Validation of Social Science-based Models. *Procedia Computer Science, Volume 16*, 878-887. DOI: https://doi.org/10.1016/j.procs.2013.01.092

Hallinen, J. (2024). *STEM.* Encyclopedia Britannica, 2 Apr. 2024. Retrieved from: https://www.britannica.com/topic/STEM-education

Hargreaves, D. H. (1967). *Social Relations in a secondary school*. London: Routledgeand Kegan Paul.

Hillston, J. (September 19, 2003). *Model Validation and Verification*. Retrieved from https://www.inf.ed.ac.uk/teaching/courses/ms/notes/note14.pdf

Luka, I. (2007). *Development of Students' English for Specific Purposes Competence in Tourism Studies at Tertiary Level*. (Unpublished doctoral dissertation). Riga: Latvijas Universitāte.

Luka, I. (2008). Students and the educator's co-operation as a means of development of students' ESP competence. Paper presented at the *European Conference on Educational Research*, University of Goteborg, 10-12.09.2008.

Mayring, P. (2000). Qualitative Content Analysis. *Forum: Qualitative Social Research, 1*(2), Art. 20. Retrieved from https://www.qualitative-research.net/index.php/fqs/article/view/1089/2385

Mayring, P. (2004). Qualitative Content Analysis. In: U. Flick, E. Von Kardoff and I. Steinke (Eds.), *A Companion to Qualitative Research*, pp. 266-269. SAGE, UK, Glasgow.

Phothongsunan, Sureepong. (2010). Interpretive paradigm in educational research. Galaxy: *The IELE Journal 2*, 1 (October 2010), 1-4.

Rott, B., Specht, B. & Knipping, C. (2021). A descriptive phase model of problem-solving processes. *ZDM Mathematics Education 53*, 737–752. DOI: https://doi.org/10.1007/s11858-021-01244-3

STEM COIL. (2021). *STEM COIL: Science, technology, engineering and mathematics for Collaborative Online International Learning*. Retrieved from https://stemcoil.eu

Taylor, P.C., & Medina, M.N.D. (2013). Educational Research Paradigms: From Positivism to Multiparadigmatic. *The Journal of Meaning-Centered Education. Volume 1*, Article 2. Retrieved from https://www.researchgate.net/profile/Peter-Taylor-28/publication/264196558_Educational_research_paradigms_From_positivism_to_multiparadigmatic/links/5b518e25a6fdcc8dae2fa55e/Educational-research-paradigms-From-positivism-to-multiparadigmatic.pdf

Thacker, B.H., Doebling, S.W., Hemez, F.M., Anderson, M.C., Pepin, J.E., & Rodriguez, E.A. (Oct 2004). *Concepts of Model Verification and Validation* (LA--14167). United States.

The State University of New York Collaborative Online International Learning (SUNY COIL) Center. (2024). *Connect. Engage. Collaborate*. Retrieved from https://coil.suny.edu

Zascerinska, J., Aleksejeva, A., Zascerinskis, M., & Abjalkiene, I. (2022). A Cross-Sectoral Approach to STEM Education: A Multi-Perspective Design. *Society. Integration. Education. Proceedings of the International Scientific Conference. Volume I*, 846-856. DOI: https://doi.org/10.17770/sie2022vol1.6817

Zascerinska, J., Aleksejeva, A., Zascerinskis, M., Abjalkiene, I., Aleksejeva, L., & Gukovica, O., (2022). HyFlex Collaboration in Cross-Sectoral STEM Education: Survey Analysis. *Current Issues of Business and Law*, *2*(3), 130-141. Retrieved from https://mokslomedis.lt/file/manual/NR.%202_2022_CIBL.pdf

Zascerinska, J., Aleksejeva, A., Zascerinskis, M., Gukovica, O., Aleksejeva, L., & Abjalkiene, I. (2021). Mixed Class Teaching as an Emerging Trend Accelerated by COVID-19. *Education. Innovation. Diversity*, *2*(3), 53-65 DOI: https://doi.org/10.17770/eid2021.2.6720

Zascerinska, J., Emet, S., Usca, S. & Bikova, A. (2023). STEM Education: A Comparative Study of Platforms in Selected Countries. *2023 International Interdisciplinary PhD Workshop (IIPhDW)*, 1-6, DOI: https://doi.org/10.1109/IIPhDW54739.2023.10124402

Zaščerinska, J. (2013). *Development of Students' Communicative Competence within English for Academic Purposes Studies*. Verlag: Mensch & Buch.

Zaščerinska, J., Aleksejeva, L., Zaščerinskis, M., Gukovica, O., & Aleksejeva, A. (2021). The Impact of the COVID-19 Pandemic on Business in Africa: Implications for Building an EU-AU Partnership of Equals, *Regional Formation and Development Studies Journal of Social Sciences*, *1*(33), 153-163. Klaipeda: Klaipeda University Faculty of Social Sciences and Humanities. DOI: http://dx.doi.org/10.15181/rfds.v33i1.2207

Zaščerinska, J., Andreeva, N., & Aleksejeva, L. (2015). Use of Role Models within English for Academic Studies. *The proceedings of Riga Teacher Training and Educational Management Academy's 10th International Young Scientist Conference*. Riga: Riga Teacher Training and Educational Management Academy, 129-137.

Zaščerinska, J., Zaščerinskis, M., Gloņina, O., Aleksejeva, A., Sowinska-Milewska, D., & Andreeva, N. (2016). Portrait of Teacher Trainer in Non-Formal Adult Education: A Comparative Study. *The Proceedings of the Riga Teacher Training and Educational Management Academy's 11th International Young Scientist Conference / Rīgas Pedagoģijas un izglītības vadības akadēmijas XI starptautiskās jauno zinātnieku konferences rakstu krājums*, pp. 140-148. Rīga: Rīgas Pedagoģijas un izglītības vadības akadēmija, 148 lpp / Riga: Riga Teacher Training and Educational Management Academy, 148. Retrieved from http://www.rpiva.lv/pdf/JZK_XI.pdf .

EMPLOYABILITY OF PROSPECTIVE SPECIALISTS AS A SET OF INTERNAL RESOURCES AND READINESS TO ENSURE THEIR OWN EMPLOYMENT IN CHANGING LABOUR MARKET CONDITIONS

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Abstract. *One of the key objectives of universities is to equip students as prospective specialists with the knowledge, skills, and competences required to secure employment in the future and to ensure that graduates continue to be employable throughout their lives, given that the conditions of modern living and the work environment are continuously changing. This study was carried out to analyse the complex nature of employability. The aim of the article is to substantiate the employability of university students as prospective specialists as a set of internal resources and their readiness to ensure their own employment in changing labour market conditions in order to set the foundation for the development of an assessment methodology to evaluate and develop the employability of students in the framework of university career guidance programmes. The authors attained the research findings presented in the article by applying the following research methods: theoretical research methods, which included desk study, review, analysis, and assessment of the scientific literature and various kinds of documents; and the empirical research method, which involved the reflection of the authors' personal experiences. The theoretical study took place in several directions to provide justification that: 1) employability is a set of various internal resources; 2) employability is viewed as readiness to ensure one's employment in changing labour market conditions; 3) readiness to ensure one's employment in changing labour market conditions is closely related to readiness for career self-management, as it is a component of readiness for career self-management; 4) readiness to ensure one's employment in changing labour market conditions, examining the structure and components (five sub-categories of readiness are identified); 5) the assessment methodology for assessing an individual's readiness to ensure their own employment in changing labour market conditions, including certain criteria and corresponding indicators. The research findings allowed several significant conclusions to be formed. The concept of employability is defined as a set of internal resources, and the ability to ensure employment in continuously changing labour market conditions. The readiness of university students as prospective specialists to ensure employment in changing labour market conditions can be analysed and evaluated from the perspective of readiness for career self-management. The readiness of university students as prospective specialists to ensure their employment in changing labour market conditions comprises five structural parts: 1) readiness for independent professional activities; 2) readiness for career self-development, including job search and integration in the labour market; 3) readiness for change in changeable conditions; 4) readiness for entrepreneurship; and 5) readiness for lifelong and lifewide education. Each of these structural parts can be used as an assessment criterion, enabling the formulation of a number of assessment indicators. Each readiness criterion includes both a psychological and a functional or competence-based component. The results of the study can serve as a basis for the further development of assessment methodology to assess the employability of university students as prospective specialists, which includes assessing their readiness to ensure employment in changing labour market conditions.*

Keywords: *assessment criteria and indicators, employability, prospective specialists, readiness structure.*

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Introduction

Nowadays, educational institutions are working on developing and investing in career guidance programmes to equip students as prospective specialists with the necessary knowledge, skills, and competences to meet the needs of employers and prepare them for the ever-changing labour market (Stewart, 2022; Troshkova, 2023).

Employers expect university graduates to be work-ready individuals who are well-equipped to join the labour market and contribute positively to the new organisation, employer, and industry as a whole (Borg, Borg, Scott-Young, & Naderpajouh, 2020). After graduation, prospective specialists are expected to have certain kinds and levels of readiness to start and continue a career in the industry. Therefore, one of the objectives of the university's activity is to promote the development of students' employability so that graduates of the university can secure jobs for themselves.

Theoretical research results (Bridgstock, 2009; Peeters et al., 2017; Smaldone, Ippolito, Lagger, & Pellicano, 2022) prove that the researchers' interest focus shifted from employment to employability.

Numerous researchers (CEDEFOP, 2023; Egbert, 2023; Hakim, Laelawati, & Mardiana, 2022; Katane & Katans, 2023; Rakićević, Rakićević, Anđelkovic, & Ljamić, 2022; Smaldone et al., 2022; Soika & Vronska, 2023; Stewart, 2022; Troshkova, 2023; Troshkova & Katane, 2023; World Economic Forum, 2023; Zachar et al., 2003) now view employability as a broad and complex concept.

Even though researchers are interested in analysing and defining employability, the concept itself lacks a clearly defined structure, criteria and indicators. The aim of the article is to substantiate the employability of university students as prospective specialists as a set of internal resources and their readiness to ensure their own employment in changing labour market conditions in order to set the foundation for the development of an assessment methodology to evaluate and develop the employability of students in the framework of university career guidance programmes.

Methodology

The authors attained the research findings presented in the article by applying the following research methods: theoretical research methods, which included desk study, review, analysis, and assessment of the scientific literature and various kinds of documents; and the empirical research method, which involved the reflection of the authors' personal experiences.

The theoretical study took place in several directions to provide justification that: 1) employability is a set of various internal resources; 2) employability is viewed as readiness to ensure one's employment in changing labour market conditions; 3) readiness to ensure one's employment in changing labour market conditions is closely related to readiness for career self-management, as it is a component of readiness for career self-management; 4) readiness to ensure one's employment in changing labour market conditions, examining its structure and five structural parts (five sub-categories of readiness are identified); 5) the assessment methodology for assessing an individual's readiness to ensure their own employment in changing labour market conditions, including certain criteria and corresponding indicators.

Research Results

Employability as a Set of Internal Resources

Even though the concept of employability has been of high interest among researchers in recent years (Bridgstock, 2009; Borg et al., 2020; Peeters et al., 2017), the researchers' views on its definition vary.

Two types of employability are discussed in Ruth Bridgstock's study (Bridgstock, 2009). The narrow definition is primarily aimed at short-term aims related to graduate employment after graduation and focuses on developing skills that are appealing to employers. The broader definition of employability, however, includes the ability to secure and retain employment, as well as being able to change and grow individually and together with the company. The authors (Peeters et al., 2017) use the term employability capital to describe a combination of personal

resources that enable individuals to obtain and retain employment, successfully change jobs, find new job opportunities, and importantly, maintain employment.

In accordance with the researchers (Smaldone et al., 2022), the employability concept points out where the supply of employees meets the demand for them and it leads and results in employment which can be viewed from the perspective of individuals, organisations, and the labour market, where the responsibility shifts from one level to another, depending on the need.

Employability refers to an individual's ability to manage, direct and change their career by constantly making choices and decisions. This is particularly important in a fast-changing and dynamic labour market, where new jobs appear, requiring individuals to gain new information, skills, and competences. These changes are inevitable; however, in order to predict the exact moment what skills and competences will be most in demand and when is currently challenging. Hence, with regard to career self-management and employability, as well as personality and professional self-development, modern society requires individuals to possess the ability to adjust to changes, be flexible in their thinking and actions, analyse the ongoing processes and labour market, assess their internal resources, and draw conclusions. These skills and competences are now beginning to develop in relation to employability that can ensure employment. Thus, employability is understood as a set of abilities to find and keep a job in constantly changing and often unpredictable conditions (Aylott, 2018; Soika & Vronska, 2023).

The review of theoretical literature (Īriste, 2018; Katane & Troskova, 2020; Troshkova & Katane, 2023) reveals that some researchers use the term employability interchangeably with competitiveness, but others point out that employability is one of the manifestations of competitiveness. Since the researchers' opinions of the concept differ, it is essential to emphasise that the authors of the current study view employability as a manifestation of competitiveness. They define employability as a set, encompassing an individual's motives, goals, attitudes, values, competences, internal personal qualities, and accumulated experiences. Employability is considered an internal resource that ensures employment and serves as a reliable source of efficiency, innovation, and productivity for employers. (Katane & Troskova, 2020; Lowden, Hall, Elliot, & Lewin, 2011). This means that employability is a set of an individual's internal resources, which forms their readiness for career self-management and ensures employment in the changing conditions of the modern labour market.

Employability as Readiness Based on Internal Resources to Ensure an Individual's Employment in Changing Labour Market Conditions

The previously conducted studies show that the interpretation of employability in the broadest sense of this concept allows one to conclude that employability is an individual's readiness to ensure their employment in changing labour market conditions, finding a suitable job, starting and successfully continuing an independent professional activity, continuously learning and improving professionally. This finding is based not only on the justification of employability as a set of internal resources but also on the interpretation of the concept of readiness for action based on theoretical research (Baltušīte, 2013; Katane & Baltušite, 2007; Katane & Krugļija, 2009; Sam, 2013), which s hows that several authors offer different interpretations of the concept of readiness for action, which in some way complement each other: 1) readiness as an orientation; 2) readiness as a pre-start state of action; 3) readiness as a mental state of being prepared, open and willing to do certain activities, in this case, professional ones; 4) readiness as the mobilisation of internal resources for actions; 5) readiness as professional preparation; readiness as an expression of ability; 6) readiness as a synthesis of personal characteristics; 7) readiness for action as a set of personal characteristics that arise as a result of the pursued education (including professional education) and accumulated experience.

To fully understand the close relationship between the employability of individuals and readiness to ensure their employment in changing labour market conditions, it is necessary to provide an insight into the concept of employment. In accordance with the Labour Law of the Republic of Latvia (LR Saeima, 2001b), employment always has a legal nature, and the employment relationship is regulated by the constitution of the state and other binding normative acts, laws and regulations, the collective agreement, and working procedure regulations. An employee in this respect is a person who is fulfilling the specific duties indicated in the employment contract for the agreed remuneration. The employment has a legal basis, and both parties sign a legal agreement on certain conditions. This means that the individual, based on the internal resources that form their employability, has successfully secured a job that is suitable for them, and is legally allowed to carry out their job responsibilities within their professional sphere while receiving adequate remuneration for their work. Therefore, employment is the achieved outcome of the individual's employability, successfully realised in practice, and the external manifestation of their internal potential or resources, which proves that the individual's abilities: knowledge, skills, competences, abilities, and experience gained, are properly assessed by the employer. Employment is the external manifestation of employability as an internal resource of an individual and the result of readiness to ensure one's employment in changing labour market conditions; employability is a prerequisite and guarantee of employment. In addition to this, employment is one of the desired results of career self-management, flexible and continuously changing career (Katane & Katans, 2023).

Business university graduates are often engaged in entrepreneurial activities and become self-employed. As per the Labour Protection Law (LR Saeima, 2001a) and the Personal Income Tax Law (LR Saeima, 1993), a self-employed individual is an individual who works independently and is responsible for paying their own income taxes and making social insurance contributions. In this scenario, specialists not only have the ability to secure employment but also create employment possibilities for others, thus making a more effective contribution to economic development.

Therefore, employment refers to the act of obtaining a job that enables an individual to be active in the labour market. It is founded on legal reasons, including the terms outlined in the employment contract with the employer, and involves receiving fair remuneration for one's work.

The employability of university students as prospective specialists is viewed as readiness to ensure employment in changing labour market conditions, based on their internal resources; this includes finding a suitable job and continuously seeking opportunities for professional growth. Therefore, the concept of readiness to ensure one's own employment can be understood as part of a broader category called readiness for career self-management.

Career self-management encompasses career exploration, setting and achieving one's career goals, including actions that help an individual improve future career opportunities and career growth. Career self-management is increasingly important in today's world of education and work. Several researchers in the context of career self-management talk about personal independence and responsibility and the need to plan one's activities and monitor results, as well as about essential 21st century skills that are highly valued by employers – creativity, individual decision-making, as well as important issues in the career development of individuals, including the importance of career success and satisfaction with one's career, and professional identity. In the career self-management process, it is essential to realise one's own knowledge, skills, competences and abilities, including the ability to build relationships and accumulate different experiences, which can help them achieve their desired results, learn and understand themselves, as well as interact with the changing environment, including changeable work environments, encompassing the diverse possibilities of development and self-realisation (Katane & Korna-Opincāne, 2020). Readiness for career self-management ensures the determination and discovery of individual personal characteristics (interests, values, direction

etc.). Readiness for career self-management testifies that individuals have developed a specific attitude towards a particular professional working environment, indicating their readiness to pursue professional fulfilment in a particular sphere of life. If individuals are ready for career self-management, they are ready to take responsibility for their future, comprehend themselves, and possess the ability to progress, and are able to consider and make responsible decisions.

Structure of Employability as Readiness to Secure One's Employment in Changing Labour Market Conditions

The research has led to the creation of a structure of readiness to ensure one's employment in changing labour market conditions. The structure comprises multiple parts, each representing various types of an individual's readiness as a substructural part (Figure 1).

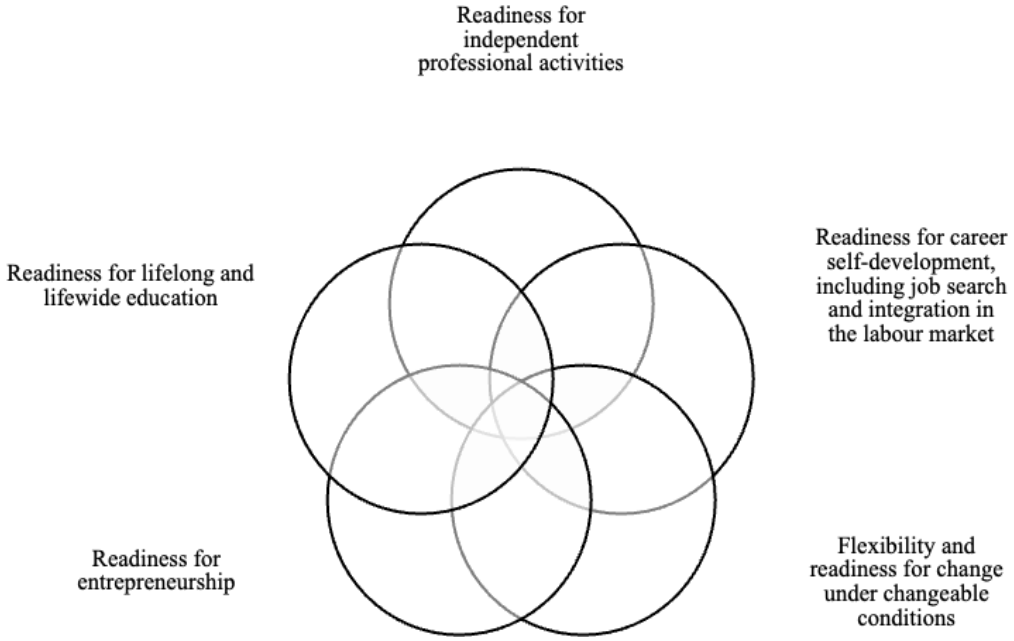

Figure 1 ***The structure of readiness of university students as prospective specialists to ensure their own employment in changing labour market conditions*** *(Created by the authors).*

The structure of university students' readiness to ensure their own employment can be divided into five structural parts (Figure 1): 1) readiness for independent professional activities; 2) readiness for career self-development, including job search and integration in the labour market; 3) readiness for change in changeable conditions; 4) readiness for entrepreneurship; 5) readiness for lifelong and lifewide education. Thus, the readiness of university students as prospective specialists to ensure their own employment under changeable labour market conditions is the result of several types of readiness. Given the interconnection and common features of each structural component, it is difficult to define their limits as they contribute to one another. As a result, the segments of the five structural components overlap (Figure 1).

● ***Readiness for professional activities.*** One of the main goals of university education is to prepare students to become competent professionals capable of working independently in their respective fields (Baltušīte, 2013). The development of hard and soft skills during university study time is one of the essential components for the employability of graduates (Low, Botes, Dela Rue, & Allen, 2016). Automation, robotisation, and artificial intelligence increase the need for digital competence in all professional fields and at all educational levels, demanding specific technical skills for each profession (Low et al., 2016; CEDEFOP, 2023).

Digital competences refer to typing, social media posting, software development, and cybersecurity, enabling individuals to understand, use, and create value with technology (Zini, 2023). In the Future of Jobs Report 2023 (World Economic Forum, 2023), digital competences are introduced with a focus on design and user experience. They are then followed by digital literacy, which encompasses critical thinking, responsible internet use, software selection, and the ability to search and evaluate digital information for research and job performance (Hakim et al., 2022).

Artificial Intelligence (AI) and big data (World Economic Forum, 2023) are becoming a third priority in company training strategies from now until 2027. In addition to this, in accordance with the Future of Jobs Report, the ability to use AI technologies effectively now exceeds human computer programming, networks and cybersecurity expertise, digital literacy, design, and user experience.

In addition to acquiring specific hard skills, it is crucial to develop certain attitudes for employability. According to the OECD research (OECD, 2020), due to the ever-changing circumstances of the modern world, individuals need to develop strong cognitive and social skills in addition to emotional skills and digital competences. Cognitive skills encompass the ability to analyse and reflect upon diverse situations and are essential for active engagement in economic and social activities. Social skills encompass the skills necessary for individuals to collaborate effectively to accomplish specific objectives. The ability to work with others involves applying empathy and active listening (World Economic Forum, 2023). Furthermore, the importance of ethics and self-efficacy is emphasised. Under ethics, it is important to embrace environmental responsibility, demonstrate global citizenship, have curiosity, and commit to lifelong learning. Self-efficacy involves displaying dependability and attention to detail, fostering motivation and self-awareness, raising resilience, and adopting flexibility and agility.

Psychological readiness is considered the long-term, holistic development of mental processes which include a certain mindset, motivation, experience, and professional aspects, ensuring the functioning of all mental areas and including professional and personal readiness for self-realisation (Baimenova, Bekova, & Saule, 2015; Chernyavska & Khokhlina, 2022). One of the crucial factors in this readiness is a conscious career choice. While making this choice, an individual's skills and qualities, awareness of the needs, demands of society, the ability to set goals, the ability to express intellectual processes, the connection with personal capabilities, the level of aspiration and necessary achievements must be considered (Bull, 2018; Uhryn, 2013). Values and family relationships have an impact on the development of readiness components in the chosen profession (Uhryn, 2013).

Other researchers (Bandaranaike & Willison, 2015) call this component emotional and consider it to involve identifying work skills, the ability to reflect on them, and the use of reflective practice to understand cognitive and affective aspects.

In addition to the indicators mentioned before, the research highlights the significance of emotional intelligence on communication, decision-making and collaboration. Emotional intelligence, also referred to as emotional-social intelligence (Bar-On, 2006), covers multiple components including self-awareness, self-management, social awareness, and relationship management (Devi & Singh, 2023). It primarily focuses on the abilities to identify, understand, and express emotions, understand the emotions of others, control emotions, overcome changes, adapt and solve personal and interpersonal problems, as well as to develop positive emotions and self-motivation (Bar-On, 2006). It also includes the ability to stay and continue working in a certain position despite the challenges or issues present in the workplace.

● ***Readiness for career self-development.*** It is important that individuals in our society, especially young people, are ready to develop their careers in conditions of continuous change (Egbert, 2023). New labour relations expect that while an organisational role in an individual's career management is becoming less important, the individual is still responsible for managing

their own personal development (Jaunzeme, 2011). Researchers (Katane & Korna-Opincāne, 2020) discuss the career self-development process as one that begins with conducting research on career options, including available opportunities, job searches, and assessing personal resources, achievements, interests, and values to determine the career that fits and, finally, developing and implementing strategies to achieve one's career goals. It is necessary to understand where an individual is, acknowledge any fears or doubts, and seek support when needed. In terms of readiness for career self-development, the significance of reflective career competences (motivation and reflection), communicative career competences (networking and self-presentation), and behavioural career competences (work exploration and career control) are emphasised (Akkermans, Brenninkmeijer, Huibers, & Blonk, 2013).

● ***Flexibility and readiness for change in changeable conditions.*** Due to the introduction of different forms of work and changes in the modern world, more flexibility and readiness for change are required from a prospective employee (Jaunzeme, 2011). Developing an ability to be flexible in both thinking and acting is crucial in professional activities and communication with others. Flexibility is an essential indicator in determining an individual's competitiveness (Īriste, 2018; Katane, 2010). Flexibility in career development and self-management in response to current changing conditions, including labour market challenges, is currently of high significance. An individual's high level of readiness to self-manage a lifelong and diverse job (self-managed lifelong career) can be demonstrated by their willingness to adapt and their professional activities, potentially even changing their profession or career path throughout their life (Katane & Katans, 2023). It is crucial for an individual to be ready to adapt to changes and develop themselves during the process of learning and self-managing their career in accordance with the Transformative Theory of Learning, the author of which is Mezirow and his peers (Fleming, 2018; Mezirow, 1997). A person develops and changes because of changes in their beliefs, sets of perceptions about something, as well as changing attitudes and values. During the process of change, competences and self-confidence in new roles and relationships are developed and the process of reintegration into one's life occurs under conditions set by one's new perspectives (Mezirow, 1997). One scientist (Egbert, 2023) indicates six stages of change, from no intention of changing an individual's behaviour to when the change is fully integrated into an individual's identity and routine, and when it becomes an integral part of an individual. Flexibility is crucial as each individual interacts with as well as within a previously unexplored and unknown environment. U. Bronfenbrenner (Bronfenbrenner, 1996) proposes three types of interaction between the individual and the environment, which are applied to the current research. When a prospective specialist starts working in a new workplace, they should not expect to influence and change everything at their own initiative from the very beginning, demanding that the environment adapts and changes according to their requirements and wishes. This is never productive because there is a significant possibility of confrontation in numerous forms. The prospective specialist must become acquainted with the new workplace environment and adapt to it, as well as understand the company's culture as an organisation, the traditions that exist within it, the prevailing values, the main goals and priorities of the organisation's development, and the specifics of communication, etc. Only after successfully adapting to a new environment may individuals demonstrate initiatives for various forms of innovation that could improve the competitiveness, operation, or quality of the services or goods of the organisation in which they work (institution, corporation). According to US scientist U. Bronfenbrenner, the most beneficial kind of interaction is the specialist's development and change in response to the changing environment. It is vital for the young specialist to be able to flexibly coordinate their personal goals with those of the organisation for which they work. This will create ideal conditions for their career improvement at work, as their ego will be in balance with the company's or institution's eco-system.

● ***Readiness for entrepreneurship.*** In the case of business universities, in particular, if a graduate chooses an entrepreneurial career, readiness for entrepreneurship is especially

important. According to researchers (Coduras, Saiz-Alvarez, & Ruiz, 2016; Rakićević et al., 2022), personal characteristics such as country of birth, gender, age, educational level, specific education/training on entrepreneurship, employment experience, income level, work status, habitat, civil status – are important in measuring an individual's readiness for entrepreneurship. Being an entrepreneur means having a certain type of mindset that prioritises opportunities above risks (Krueger, 2000). Entrepreneurial readiness includes an individual's entrepreneurial intentions, which are influenced by self-efficacy and environmental support (Amofah, Saladrigues, & Akwaa-Sekyi, 2020). An individual's intentions are the most accurate indicator of any planned activity and can change depending on the circumstances. Intentional activities can be better understood if the causes of the intentions are known. In addition to the above-mentioned, entrepreneurial knowledge and experience are essential for business students, which include entrepreneurial education and an entrepreneurial environment (Rakićević et al., 2022).

A university plays a special role and is an excellent environment for recognising, encouraging, and fostering students' entrepreneurial interests and desires; in this way, it cultivates future and sustainable entrepreneurial initiatives, which play a crucial role in developing economic growth and national development (Amofah et al., 2020). In order to do this, universities organise talks, seminars, visits to companies, and competitions, arrange entrepreneurial training programmes for students, and offer free elective credit courses on business management training initiatives, as well as cross-disciplinary and specific training programmes (Barba-Sánchez, Mitre-Aranda, & Brío-González, 2022).

Entrepreneurial attitudes lead to solving serious problems and the smoother functioning of organisations and societies. Entrepreneurial skills refer to the skills that enable individuals to accomplish entrepreneurial duties effectively and efficiently with success (Ćoćkalo, Đorđević, Bogetić, & Bakator, 2020). Entrepreneurial skills encompass a sense of initiative, devising solutions to emerging problems, and effective communication (Jardim, 2021). In addition to creativity and innovation, initiative, self-efficacy and resilience, strategic planning and evaluation, problem-solving, transformational leadership, clear and visual communication, teamwork and networking, and digital communication comprise entrepreneurial skills.

Employability skills include green skills, which are the skills required for a resource-efficient and sustainable economy and society (CEDEFOP, 2012; CEDEFOP, 2023). These skills can be divided into technical skills and transversal skills. Technical skills enable individuals to adapt to ESG standards and processes, implementing them in the work environment, while transversal skills are linked to sustainable thinking and acting, and are relevant to work. In accordance with the study by C.T. Kwauk, and O.M. Casey (Kwauk & Casey, 2022), these skills empower individuals to engage in greener behaviours and make greener decisions in a variety of contexts.

● ***Readiness for lifelong and lifewide education.*** Continuous change requires being ready to learn for all of one's life and career. For business students aspiring to become entrepreneurs, it is essential to have a solid understanding of entrepreneurship. Besides having knowledge in entrepreneurship, they must also continuously learn about the specific field or sector in which they plan to start their business, such as IT or education (including the establishment, management, accreditation of private educational institutions, and the development of educational programmes), trade (including opening shopping centres, shops, and e-shops), tourism and/or hospitality (including catering restaurants and hotel businesses), organisation and management of cultural events, languages (including opening and managing translation offices), and more. In accordance with Guglielmino (Guglielmino, 1977), the key concepts for self-directed learning readiness are openness, self-concept, initiative and independence in learning, responsibility, love of learning, creativity, positive orientation, and the ability to use basic study and problem-solving skills. Responding to the need for lifelong and lifewide learning, the EU establishes lifetime guiding systems that systematically create actions to foster efficient cooperation and coordination between service providers at the national, regional, and

local levels (CEDEFOP, 2008). The authors (Zachar et al., 2003) argue that guidance plays a crucial role in supporting personal development and enhancing employability.

It is also essential to highlight an individual's self-control and self-regulation mechanisms, in which determination plays a crucial role, as well as decisiveness, responsibility, and the ability to appropriately manage oneself and one's professional activities, thus encouraging creativity in the workplace (Baltušīte, 2013).

Assessment Criteria and Indicators to Assess One's Readiness Based on Their Internal Resources to Ensure Employment in Changing Labour Market Conditions

To create an effective career guidance environment for students, the university is required to develop a theoretical framework to measure their readiness to ensure employment in changing labour market conditions. This framework will consider various internal factors that contribute to students' general employability. The assessment methodology enables students to evaluate areas for further development and identify areas that require improvement. This allows them to secure a suitable job, engage in independent professional work, or potentially establish their own business and become employers.

The development of this methodology was based on the previously described structure of readiness. All five sub-readiness structural parts (Figure 1) were used as the main criteria for assessing one's readiness for work in changing labour market conditions (Table 1). Thus, a number of assessment indicators were identified as well, based on these five criteria. The formulations of the indicators were based on the results of theoretical studies (references to the resources used can be found in Table 1) and the reflection of personal experience. Each criterion contains two separate categories of indicators, each of them with its own justification. According to the study (Katane & Korna-Opincāne, 2020), scientists discuss different aspects of readiness for action, including psychological readiness, functional readiness, and integrative readiness. Psychological readiness refers to the mental readiness to initiate or carry out an action. Functional readiness relates to practical skills and competences required for the action. Integrative readiness combines both psychological and functional components into a single unit. The authors of the article agree with the notion of integrative readiness and propose that readiness to ensure employment in changing labour market conditions is an integrative unit and that each sub-readiness structural part and at the same time the assessment criterion consist of two components (Baltušīte, 2013; Baltusite & Katane, 2014; Katane & Korna-Opincāne, 2020): 1) *the functional or competence-based component* (the individual's knowledge, skills, and ability to perform the task) and 2) *the psychological component* (personal and professional inner direction, including the individual's desire, motivation, and willingness to do something).

Table 1 ***Assessment criteria and indicators for evaluating the readiness of university students as prospective specialists to ensure their own employment*** *(Created by the authors)*

Criteria	**Indicators based on the two main readiness components**	**References**
Readiness for independent professional activities	*1. Functional or competence-based component*: (▪) professional and technical knowledge, skills, competences for each profession; (▪) digital competences; (▪) cognitive skills; (▪) social skills; (▪) ethics; (▪) self-efficacy.	Baltušīte, 2013; CEDEFOP, 2023; Hakim et al., 2022; Low et al., 2016; OECD, 2020; World Economic Forum, 2023; Zini, 2023.
	2. Psychological component:	Baimenova et al., 2015; Baltušīte, 2013; Bandaranaike &

Criteria	Indicators based on the two main readiness components	References
	(▪) certain mindset; (▪) motivation, (▪) experience, (▪) professional aspects, (▪) ensuring functioning; (▪) emotional intelligence.	Willison, 2015; Bar-On, 2006; Bull, 2018; Chernyavska & Khokhlina, 2022; Devi & Singh, 2023; Uhryn, 2013.
Readiness for career self-development, including job search and integration in the labour market	*1. Functional or competence-based component*: (▪) reflective competences; (▪) communicative competences; (▪) behavioural career competences; (▪) the ability to search and find the necessary information; (▪) the ability to analyse the labour market; (▪) the ability to set aims and strategies for career self-development.	Akkermans et al., 2013; Aylott, 2018; Katane & Korna-Opincāne, 2020; Soika & Vronska, 2023.
	2. Psychological component: (▪) Motivation and responsibility for managing one's own personal and career development.	Jaunzeme, 2011; Katane & Korna-Opincāne, 2020
Flexibility and readiness for change in changeable conditions	*1. Functional or competence-based component*: (▪) the ability to think flexibly; (▪) the ability to act flexibly in various fields, including professional; (▪) the ability to communicate with different people; (▪) the ability to flexibly adapt and fit into a new, unknown environment – a new workplace, incl. in the cultural environment of the organisation (institution, company), in a new, unknown social group (work team), etc.; (▪) the ability to flexibly self-manage one's career; (▪) the ability to flexibly align the individual's goals with the goals of the workplace as an organisation; (▪) the ability to be open to changes, perceiving them as a source of new opportunities rather than as potential hazards; (▪) the ability to learn new social roles by gaining new experiences; (▪) the ability to change in interaction with the changing environment of professional activity (changes in the industry, workplace); (▪) the ability to change while learning, to transform into a new quality or level of development; (▪) as a result of new knowledge and experience, the ability to change one's thoughts, beliefs, attitudes, to re-evaluate one's values, life goals and priorities; (▪) the ability to change career direction; (▪) ability to learn new professions; (▪) ability to change workplace on more favourable terms, opening a new perspective for career growth.	Aylott, 2018; Bronfenbrenner, 1996; Jaunzeme, 2011; Katane, 2010; Katane & Katans, 2023; Katans, 2019; Soika & Vronska, 2023.
	2. Psychological component: (▪) the ability to reflect on the situation; (▪) the motivation and internal necessity to change oneself, if necessary to change one's career, one's profession in accordance with changes, to ensure employment in a changing labour market.	Egbert, 2023; Fleming, 2018; Katane & Katans, 2023; Mezirow, 1997.
Readiness for entrepreneurship	*1. Functional or competence-based component:* (▪) entrepreneurial mindset; (▪) critical thinking; (▪) personal characteristics: country of birth, gender, age, educational level), specific education/training on entrepreneurship, employment experience; income level, work status, habitat, civil status; (▪) entrepreneurial knowledge and experience; (▪) a sense of initiative;	CEDEFOP, 2012; CEDEFOP, 2023; Coduras et al., 2016; Ćoćkalo et al., 2020; Kwauk & Casey, 2022; Jardim, 2021; Krueger, 2000; Rakićević et al., 2022.

Criteria	Indicators based on the two main readiness components	References
	(▪) creating solutions to emerging problems; (▪) effective communication; (▪) creativity and openness to innovation; (▪) self-efficacy and resilience, (▪) strategic planning and evaluation; (▪) problem-solving, (▪) transformational leadership; (▪) clear and visual communication; (▪) teamwork and networking; (▪) digital communication; (▪) the ability to effectively and efficiently accomplish entrepreneurial duties; (▪) green skills (to adapt to ESG standards and processes and implement them, and transversal, linked to sustainable thinking and acting.	
	2. Psychological component: (▪) entrepreneurial intentions; (▪) goals; (▪) motives; (▪) expectations; (▪) desire to start a business; (▪) the ability to dare and take conscious risks.	Amofah et al., 2020; Īriste, 2018; Katane, 2010
Readiness for lifelong and lifewide education	*1. Functional or competence-based component:* (▪) openness; (▪) self-concept; (▪) initiative; (▪) independence in learning; (▪) responsibility; (▪) love of learning; (▪) creativity; (▪) positive orientation; (▪) the ability to use basic study skills; (▪) problem-solving skills; (▪) problem-based learning experience; (▪) ability to simultaneously combine formal education with non-formal education; (▪) ability to combine studies with work; (▪) the ability to flexibly use the knowledge, skills and competences acquired in informal education, as well as the experience accumulated during life, in professional activities; (▪) in the context of knowledge management, the ability to share knowledge and experience in the workplace with colleagues; (▪) readiness for continuous self-directed lifelong and life-wide learning.	Guglielmino, 1977; Katane & Katans, 2023; Katans, 2019; Zachar et al., 2003
	2. Psychological component: (▪) willingness to learn and develop within one's lifetime; (▪) motivation to continuously develop and improve professionally by attending various training courses, seminars, conferences; (▪) having curiosity; (▪) commitment to lifelong learning; (▪) self-control; (▪) self-regulation.	Baltušīte, 2013; CEDEFOP, 2008; Katane & Katans, 2023; Katans, 2019; World Economic Forum, 2023.

The developed substantiation of employability as a set of internal resources and, at the same time, readiness to ensure one's employment in changing labour market conditions, including the structure of this readiness, as well as the formulated assessing criteria and indicators, can serve as a theoretical foundation for the development of assessment methodology.

Conclusions

The topic of employability has attracted significant interest from researchers in recent years. The importance of this concept increases by the constantly changing and dynamic nature of employment settings, where new positions appear and require individuals to constantly

acquire new knowledge, skills and competences and while also adapting to the changing employment conditons.

In the current study, the concept of employability is defined as a set of internal resources and the readiness to ensure employment in changing labour market conditions.

The readiness of university students as prospective specialists to ensure employment in changing labour market conditions was analysed and evaluated from the perspective of readiness for career self-management.

The readiness of university students as prospective specialists to ensure their employment in changing labour market conditions comprises five structural parts: 1) readiness for independent professional activities; 2) readiness for career self-development, including the job search and integration in the labour market; 3) readiness for change in changeable conditions; 4) readiness for entrepreneurship; and 5) readiness for lifelong education.

Each of these structural parts was used as an assessment criterion, enabling the formulation of a number of assessment indicators. Each readiness criterion includes both a psychological and a functional or competence-based component.

The results of the study can serve as a basis for the development of assessment methodology to evaluate the employability of university students as prospective specialists, which includes assessing their readiness to ensure employment in changing labour market conditions. In the framework of university career guidance programmes, including programmes for developing students' employability, the use of the assessment methodology can help students evaluate areas for further development and identify areas that require improvement. This, consequently, can contribute to their future possibilities of securing suitable employment, engaging in independent professional activities, and/or potentially establishing their own businesses and becoming employers.

References

Akkermans, J., Brenninkmeijer, V., Huibers, M., & Blonk, R.W.B. (2013). Competencies for the Contemporary Career: Development and Preliminary Validation of the Career Competencies Questionnaire. *Journal of Career Development, 40*, 245-267. DOI: 10.1177/0894845312467501.

Aylott, E. (2018). *Employee Relations: A Practical Introduction.* London: Kogan Page.

Amofah, K., Saladrigues, R., & Akwaa-Sekyi, E. (2020). Entrepreneurial intentions among MBA students. *Cogent Business & Management, 7*(1), 1-23. DOI: 10.1080/23311975.2020.1832401.

Baimenova, B., Bekova, Z., & Saule, Z. (2015). Psychological Readiness of Future Educational Psychologists for the Work with Children in the Conditions of Inclusive Education. *Procedia - Social and Behavioral Sciences, 205*, 577-583. DOI: https://doi.org/10.1016/j.sbspro.2015.09.082.

Baltušīte, R. (2013). *The Pedagogy Students' Readiness for Professional Activities in the School Environment.* Summary of the Doctoral Thesis. Jelgava: LLU.

Baltusite, R., & Katane, I., (2014). The structural model of the pedagogy students' readiness for professional activities in the educational environment. In V. Dislere (Ed.), *Rural environment. Education. Personality (REEP2013)*. *7*, pp. 29 – 41. Jelgava: Latvia University of Agriculture. Retrieved from https://llufb.llu.lv/conference/REEP/2014/Latvia-Univ-Agricult-REEP-2014proceedings-29-41.pdf

Bar-On, R. (2006). The Bar-On model of emotional-social intelligence (ESI). *Psicothema*, *18*, 13–25.

Barba-Sánchez, V., Mitre-Aranda, M., & Brío-González, J. (2022). The entrepreneurial intention of university students: An environmental perspective. *European Research on Management and Business Economics, 28*(2), 100184. DOI: https://doi.org/10.1016/j.iedeen.2021.100184

Bandaranaike, S. & Willison, J. (2015). Building capacity for work-readiness: Bridging the cognitive and affective domains. *Asia-Pacific Journal of Cooperative Education, 16*, 223-233. Retrieved from https://digital.library.adelaide.edu.au/dspace/handle/2440/97926

Borg, J., Borg, N., Scott-Young, C., & Naderpajouh, N. (2020). The work readiness–career resilience linkage: implications for project talent management. *International Journal of Managing Projects in Business, 14*(4), 917-935. DOI: 10.1108/IJMPB-04-2020-0129.

Bridgstock, R. (2009). The graduate attributes we've overlooked: Enhancing graduate employability through career management skills. *Higher Education Research and Development, 28*, 31-44. DOI: 10.1080/07294360802444347.

Bronfenbrenner, U. (1996). *The Ecology of Human Development. Experiments by Nature and Design.* Cambridge: Harvard University Press.

Bull, D.A. (2018). Employee Readiness and Turnover Intent: A Critical Examination of Hospital. *International Journal of Healthcare Sciences, 6*(1), 261-271. DOI: 10.13140/RG.2.2.21140.19846

CEDEFOP. (2008). *From policy to practice. A systemic change to lifelong guidance in Europe.* Luxembourg: Office for Official Publications of the European Communities. Retrieved from https://www.cedefop.europa.eu/files/etv/Upload/Information_resources/Bookshop/505/5182_en.pdf .

CEDEFOP. (2012). *Green skills and environmental awareness in vocational education and training: Synthesis report. European Commission.* Retrieved from https://www.cedefop.europa.eu/files/5524_en.pdf

CEDEFOP. (2023). *Skills in transition: the way to 2035*. Luxembourg: Publications Office. Retrieved from http://data.europa.eu/doi/10.2801/438491

Chernyavska, S., & Khokhlina, O. (2022). Psychological readiness of civil aviation student pilots for professional activity: theoretical aspect of the problem. *Scientific innovations and advanced technologies*, *1*(3), 432-447. DOI: https://doi.org/10.52058/2786-5274-2022-1(3)-432-447

Ćoćkalo, D., Đorđević, D., Bogetić, S., & Bakator, M. (2020). Youth entrepreneurship development: A review of literature and ten-year research results. *Journal of Engineering Management and Competitiveness, 10*, 151-161. DOI: 10.5937/jemc2002151Q.

Coduras, A., Saiz-Alvarez, J. M., & Ruiz, J. (2016). Measuring readiness for entrepreneurship: An information tool proposal. *Journal of Innovation & Knowledge*, *1*(2), 99-108. DOI: https://doi.org/10.1016/j.jik.2016.02.003

Devi, K.A., & Singh, S.K. (2023). Emotional intelligence in the workplace understanding measuring and enhancing your emotional quotient. *Indian Journal of Applied Research. 13*(5), 1. DOI: 10.36106/ijar.

Egbert, S. (2023). *Readiness for Change: Navigating Your Path to Transformation.* Retrieved from https://www.linkedin.com/pulse/readiness-change-navigating-your-path-transformation-scott-egbert/

Hakim, S., Laelawati, L., & Mardiana, R. (2022). The Role of Digital Skills and Technological Innovation in Improving the Performance of Small and Medium Industries. *Systematic Literature Review, 230*, 74-102. DOI: 10.2991/978-94-6463-068-8_7.

Guglielmino, L. M. (1977). *Development of the Self-Directed Learning Readiness Scale*. Dissertation. University of Georgia, GA.

Fleming, T. (2018). Mezirow and the Theory of Transformative Learning. In V. Wang (Ed.). *Critical Theory and Transformative Learning* (pp.120-136). Hershey: IGI Global. DOI: 10.4018/978-1-5225-6086-9.ch009

Īriste, S. (2018). *Prospective Managers' of Hospitality Business Competitiveness Evaluation and Development promotion in the Dual Study Environment of Higher Education Institution.* Summary of the Doctoral Thesis. Jelgava: LLU.

Jardim, J. (2021). Entrepreneurial Skills to Be Successful in the Global and Digital World: Proposal for a Frame of Reference for Entrepreneurial Education. *Education Sciences*, *11*(7), 356. DOI: https://doi.org/10.3390/educsci11070356

Jaunzeme, I. (2011). *Karjeras vadības un atbalsta sistēmas pilnveidošanas problēmas augstākajā izglītībā Latvijā* (Problems of improving the career management and support system in higher education in Latvia). Promocijas darbs. Rīga: Latvijas Universitāte. (in Latvian).

Katane, I. (2010). Competitiveness of Personality as a New Concept in Modern Education and Pedagogy Science. In L. Malinovska, & V. Osadcuks (Eds.), *Engineering for Rural Development*. *9*, pp. 327 – 334. Jelgava: LLU.

Katane, I., & Baltušite, R. (2007). Ecological Approach for the Formation and Development of Prospective Teachers' Readiness for the Professional activities at Latvian Schools. *Transformations in Business & Economics*, *6*(2), 114 – 132. Retrieved from http://www.transformations.knf.vu.lt/12/article/ecol

Katane, I., & Katans, E. (2023). Lifelong Guidance as a Topicality for the Promotion of the Lifelong and Lifewide Multidimensional Career Development Nowadays. *Education. Innovation. Diversity, 2*(7), 83-95. DOI: https://doi.org/10.17770/eid2023.2.7354

Katane, I., & Korna-Opincāne, E. (2020). The Readiness of Students for Career Self-management. In V. Ļubkina, & G. Mazano (Eds.), *Society. Intagration. Education*. *3*, pp. 286-301. DOI: http://dx.doi.org/10.17770/sie2020vol3.5169

Katane I., & Krugļija S. (2009). Pedagogical Students' Readiness to Professional Activity in Ecological Aspect. *Society. Integration. Education*. *1*, pp. 80. – 89. Rezekne: Rezekne Higher Education Institution.

Katane, I., & Troskova, M. (2020). Theoretical Substantiation of The Competitiveness of Academic Staff from The Perspective of Educational Sciences. In Z. Gaile (Ed.), *Research for Rural Development 2020*. *35*, pp. 274-281. Jelgava: Latvia University of Life Sciences and Technologies. DOI: 10.22616/rrd.26.2020.040.

Katans, E. (2019). *Programmētāju profesionālās attīstības veicināšana mācīties spējīgā IT uzņēmumā zināšanu pārvaldības skatījumā* (Promoting the Professional Development of Programmers in a Learning IT

Company from the Perspective of Knowledge Management). Master's Thesis. Jelgava: Latvia University of Life Sciences and Technologies. (in Latvian)

Krueger, N., & Reilly, M., & Carsrud, A. (2000). Competing Models of Entrepreneurial Intention. *Journal of Business Venturing, 15*, 411-432. DOI: 10.1016/S0883-9026(98)00033-0.

Kwauk, C. T., & Casey, O. M. (2022). A green skills framework for climate action, climate empowerment, and climate justice. *Development Policy Review, 40*(S1), e12624. DOI: https://doi.org/10.1111/dpr.12624

Low, M., Botes, V., Dela Rue, D., & Allen, J. (2016). Accounting employers' expectations - the ideal accounting graduates. *e-Journal of Business Education and Scholarship of Teaching, 10*(1), 36–57. Retrieved from https://files.eric.ed.gov/fulltext/EJ1167364.pdf

Lowden, K., Hall, S., Elliot, D., & Lewin, J. (2011). *Employers' Perceptions of the Employability Skills of New Graduates*. London: Edge Foundation. Retrieved from https://www.educationandemployers.org/wp-content/uploads/2014/06/employability_skills_as_pdf_-_final_online_version.pdf

LR Saeima. (2001a). *Darba aizsardzības likums.* Retrieved from https://likumi.lv/ta/id/26020 (in Latvian).

LR Saeima. (2001b). *Darba likums.* Retrieved from https://likumi.lv/ta/id/26019 (in Latvian).

LR Saeima. (1993). *Likums "Par iedzīvotāju ienākuma nodokli".* Retrieved from https://likumi.lv/ta/id/56880 (in Latvian).

Mezirow, J. (1997) Transformative Learning: Theory to Practice. *New Directions for Adult and Continuing Education*. *74*, (pp. 5-12). DOI: http://dx.doi.org/10.1002/ace.7401

OECD. (2020). *OECD Skills Strategy Implementation Guidance for Latvia: Developing Latvia's Education Development Guidelines 2021-2027*. Paris: OECD Publishing. DOI: https://doi.org/10.1787/ebc98a53-en

Peeters, E., Nelissen, J., De Cuyper, N., Forrier, A., Verbruggen, M., & De Witte, H. (2017). Employability Capital: A Conceptual Framework Tested Through Expert Analysis. *Journal of Career Development, 46*(2), 79-93. DOI: 10.1177/0894845317731865.

Rakićević, Z., Rakićević, J., Anđelkovic, L.J., & Ljamić, B. (2022). How Entrepreneurial Education and Environment Affect Entrepreneurial Readiness of STEM and Business Students? A Longitudinal Study. *Engineering Economics, 33*, 414-432. DOI: 10.5755/j01.ee.33.4.30244.

Sam, M.S. (2013). *Readiness*. Retrieved from Psychology Dictionary.org: https://psychologydictionary.org/readiness/

Smaldone, F., Ippolito, A., Lagger, J., & Pellicano, M. (2022). Employability skills: Profiling data scientists in the digital labour market. *European Management Journal, 40*(5), 671-684. DOI: https://doi.org/10.1016/j.emj.2022.05.005

Soika, I., & Vronska, N. (2023). Career Counselling in Human Resource Management. In N. Vronska (Ed.), *Rural Environment. Education. Personality (REEP2023). 16*, pp. 20 – 28. Jelgava: Latvia University of Life Sciences and Technologies. DOI: 10.22616/REEP.2023.16.002.

Stewart, B. (2022). *Career Readiness of Recent Graduates.* Dissertation. Murray: Murray State University. Retrieved from https://digitalcommons.murraystate.edu/cgi/viewcontent.cgi?article=1300&context=etd

Troshkova, M. (2023). Career development for enhancing employability of students as prospective specialists in the university educational environment. In Z. Gaile (Ed.), *Research for Rural Development 2023. 38*, pp. 284 – 290. Jelgava: Latvia University of Life Sciences and Technologies. DOI: 10.22616/RRD.29.2023.040

Troshkova, M., & Katane, I. (2023). Employability of University Students as Prospective Specialists in the Context of Their Competitiveness. In N. Vronska (Ed.), *Rural Environment. Education. Personality (REEP2023). 16*, pp. 87 – 94. Jelgava: Latvia University of Life Sciences and Technologies. DOI: 10.22616/REEP.2023.16.010

Uhryn, O. (2013). Psychological readiness of students for professional life. *Journal of Education Culture and Society, 4*(2), 97-107. DOI: 10.15503/jecs20132-97-107.

Zachar, L., Kiszter, I., Vladiszavljev, A., Kreft, W., Trzeciak, W., Jigău, M., Grajcar, S., Fondova, I., Detko, J., Niklanovic, S., & Sultana, R. (2003). *Review of Career Guidance Policies in 11 Acceding and Candidate Countries Synthesis Report*. Retrieved from https://www.etf.europa.eu/en/publications-and-resources/publications/review-career-guidance-policies-11-acceding-and-candidate

Zini, A. (2023). *Coursera Digital Skills Report 2023*. Retrieved from https://digital-skills-jobs.europa.eu/en/inspiration/research/coursera-digital-skills-report-2023

World Economic Forum. (2023). *Future of Jobs Report 2023*. Retrieved from https://www.weforum.org/publications/the-future-of-jobs-report-2023/

A MATTER OF TRANSLATION? *UDL* AS FRAMEWORK FOR STUDENT TEACHER'S VIDEO ANALYSIS

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Abstract. *Teacher education needs innovative formats to meet the enormous challenge posed to schools by society's demand for inclusion. Teachers must be both competent and willing to involve all students in their lessons in the best possible way. One format for imparting both relevant knowledge and associated professional attitudes can be the reflection of taped teaching sequences. These are able to reflect the complexity of teaching in such a way that a particularly productive analysis can be carried out. The study aims to explore the potential of using the Universal Design for Learning (UDL; german version by Kremsner, Proyer, and Baesch 2020) as a framework for inclusion orientation in reflecting on videographed instructional sequences. We use qualitative analysis of recordings of a video-based accessible reflection task for 16 master students groups. The students were part of a preparatory seminar for the practical phase in the Master's program. The heterogeneous results indicate that using the UDL reveals multiple difficulties for the students due to its general structure and the German translation utilised. Furthermore, we identify that framing the reflection tasks in the context of inclusive didactics is essential for students' acquisition of competencies.*
Keywords: *Video-Based Reflection; UDL, Teacher Education.*

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Introduction

By signing the UN CRDP, Germany has taken an active step and taken upon itself the responsibility to shape an "inclusive education system at all levels" (UNO, 2021, p. 16). This decision goes beyond a declaration of will, and it is an obligation against the background of the recognition of the human right to education for all people. Thus, in addition to the decision-makers at the macro level of educational policy and the meso-level of individual school institutions, teachers at the micro-level of concrete instructional design have the responsibility and duty to provide all students with the best possible access to the shared subject matter (Kaplan & Lewis, 2019, p. 5; Pit-ten Cate, Markova, Krischler, & Krolak-Schwerdt, 2018, p. 49–50). For this purpose, language teaching, in this case German teaching or more specifically german literature teaching, offers a remarkable potential when students can act on shared objects at their individual access modes and competence levels with the help of digital methods.

In order for teachers to leverage this potential, they must be able to deal with concepts of inclusion orientation in their training. Inclusion must not only be a topic that is dealt with but must also be a space of experience that students can reflect upon (Merz-Atalik, 2017). The goal must be to teach both competencies and attitudes, as Pit-ten Cate et al. (2018) can show in their review article on the relationship of competence, attitude, and training in teacher education. The *Profile for Inclusive Teacher Professional Learning* presented by the *European Agency for Special Needs and Inclusive Education* in 2022 provides a framework for this (De Vroey, Lecheval, & Symeonidou, 2023).

Inclusion orientation in teacher training, equivalent to implementation in schools, is not an unpleasant additional task that can be dealt with when it fits into the educational plan. To

achieve the goal of the UN CRDP, student teacher and their instructors must always think of access for all pupils as a necessity. It is one of the primary conditions of all didactic efforts and thus of all learning processes that student teacher undergo in their education. This task includes permanently reflecting on one's content, pedagogical, and technical knowledge in the context of inclusion, as Marci-Boehncke (2018) states in her analysis and extension of the TPACK model (Mishra & Koehler, 2006). In addition to a professional, positive attitude towards diversity, teachers need above all knowledge about possibilities of dealing with heterogeneous learning groups, such as the concrete frame of reference Universal Design for Learning (UDL) can offer. With its focus on an "*intentional proactive valuing of diversity*" (Zaloudek, 2014, unpaginated, italic in original), UDL has potential here in a dual capacity.

This article investigates a small component of this approach in the context of teacher training in German at the Technical University of Dortmund. The presented module at the beginning of the preparation for practice in the master's program focuses on inclusion orientation and thus lays it as a foundation for the further theoretical preparation of the practice phase. We show how an understanding of possibilities of inclusion orientation can be deepened with students by having them reflect cooperatively and discursively on the design of videotaped teaching sequences, referring to the framework of UDL. Our goal with the project is to make students "reflective [and] critical thinkers" (Kaplan & Lewis, 2019, p. 5–6). The accompanying research presented here explores the following question: How do students apply the principles of *Universal Design for Learning* as a framework model for inclusion orientation in reflecting on instructional sequences from the context of *Trailers as Multimodal Text Summaries*? The aim of the article is to present the results of the qualitative exploratory study of 16 groups of students who were recorded analyzing videos in order to identify the potential and barriers to using UDL as a framework for analysis.

In the following, we first introduce the theoretical frame of UDL and the potential of video-based reflection in teacher education. We then explain the design of the video-based teaching module and the research design, and the results and consequences of the first evaluation cycle.

The Universal Design for Learning

As noted above, inclusion in the education system means achieving a state in which "the diverse needs of all learners are addressed and responded to, regardless of their social, economic, cultural, linguistic, physical, or other contexts" (Kaplan & Lewis, 2019, p. 4). The UDL framework developed by the Center for Applied Special Technology can make a pivotal contribution to this by providing teachers and education leaders with a guideline for planning instruction and curricula (CAST, 2018). In this regard, Universal Design for Learning intends to represent an evolution from a "'teacher-centered' to a 'learner-centered' approach" (Al-Azawei, Serenelli, and Lundqvist, 2016, p. 41). At the heart of this is a changing paradigm for how diversity is perceived by all students, due to which teachers should consider accessibility from the outset (Zaloudek, 2014).

UDL is based on the seven principles of Universal Design (UD) first introduced in the field of accessible architecture (Mace, Hardie, and Place, 1991; Story, Mueller, & Mace, 1998). This "means the design of products, environments, programs and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialised design" (UNO, 2021, p. 4) and includes, among others, the principles of equitable and intuitive use, tolerance for error, and low physical effort (Story et al., 1998). Probably the most widely used architectural example is a ramp instead of stairs, which allows wheelchair users to access buildings and provides a universal way of access for all other people with possible limitations. Other concepts based on UD, some are precursors to UDL, include

Universal Design in Education (Bowe, 2000), *Universal Design for Instruction* (Scott, Mcguire, and Shaw, 2003), and *Universal Design of Instruction* (Burgstahler, 2009). As a result of a critical examination of teachers' implementation of UDL principles, Kremsner, Proyer, and Baesch (2020) also developed *Local Inclusive Design for Education*, which also references the original principles of UD closely.

The three basic principles of UDL are

Provide multiple means of engagement, so that learners become purposeful & motivated

Provide multiple means of representation, so that learners become resourceful & knowledgeable

Provide multiple means of action and expression, so that learners become strategic & goal-directed (CAST, 2018).

Subsequently, the principles were expanded to include guidelines, which in turn were further differentiated by checklists. However, the UDL Framework is not a "formula with set methods and tools" (Meyer, Rose, & Gordon, 2014, p. 87) to be applied in the same way in every situation. These checklists are intended to help teachers translate the still relatively open principles and guidelines of the UDL for their teaching. However, Kremsner et al. point out that this requires a "translation effort for the inclusive setting", which means both a linguistic transfer into the respective language and a "translation of the content in order to understand the explanations [...] and make them manageable for practice" in context of lesson planning (2020, p. 39; our translation).

Although the effect of implementing the UDL guidelines is "debatable" (Capp, 2017, p. 791) and encounters various barriers (Yuwono, Mirnawati, Kusumastuti, & Ramli, 2023), the bulk of empirical research shows "that exerting further effort to foster the UDL framework in curricula design can provide equal learning opportunities for all people" (Al-Azawei et al., 2016, p. 51). Capp's (2017) meta-analysis also demonstrates the positive effect of implementing UDL on all students. Almeqdad et al. emphasize that the implementation of UDL is particularly successful when not just one or two, but all three principles are addressed (Almeqdad, Alodat, Alquraan, Mohaidat, & Al-Markhzoomy, 2023, p. 20). Nevertheless, the study by Bray et al. shows that studies on the use of technology for UDL implementation pay particular attention to the aspect of representation and tend to neglect the other principles (Bray et al. 2024, p. 129). Most studies focus on the presentation of information (e.g., Hall, Cohen, Vue, & Ganley, 2015; Tzivinikou, 2014), which is why Capp (2017) calls for further research on the evidence of the other principles. Schlüter and Melle (2020) also point out that most studies do not examine the evidence of the actual UDL guidelines but rather the evidence of the teaching-learning environments developed on that basis.

For media-convergent German teaching (Marci-Boehncke & Rath, 2011), UDL seems to be the consequential connecting point for the field of inclusive media and German didactics (Marci-Boehncke, 2018). The use of diverse text modalities, genuinely anchored training of linguistic-communicative and reflexive skills and the reference back to a vast concept of reading and text (ibid.) go directly hand in hand with the claim to enable access to information in different ways. Edyburn (2007), for example, addresses the area of universally designed reading instruction by considering how the goal of sensory reading can be supported with the help of assistive technology. He emphasizes the potential of assistive technology for all students and calls for teachers to develop a positive attitude towards such concepts. The orientation to the pupils' mediatized lifeworld (Krotz, 2017), to their media world and its (digital) forms of use, enables content-related and methodological adaptations to promote engagement, communication, and expression. Digital media thus have particular potential for implementing UDL in action and production-oriented literature instruction (Spinner, 2002) and are therefore a vital aspect of this article.

Video-based tasks for inclusion-oriented reflection

Video-based reflection on teaching is of great importance for teacher education in international discourse, which is rooted in the various diverse potentials of reflection and the medium of video. Reflection is supposed to serve the connection of theory and practice, but as a term, it is hardly graspable as a clear theoretical concept. It is used as a container for various processes (Wyss & Mahler, 2021, p. 19–20; Clarà, 2015). Based on Dewey's broad definition, that all goal-directed thought processes are nameable as reflection (Dewey, 1997), numerous conceptual understandings developed in the transfer to teacher education.

These are distinguished according to the objects to which they are related or their goal direction. Schön has certainly provided the most widely used structuring by identifying the processes of "reflection-in-action" ([1983] 2016, p. ix) and "reflection on action" (p. 276). This categorization was subsequently extended to include "reflection-for-action" as "the desired outcome of both previous types of reflection" (Killion & Todnem, 1991, p. 15). The question of how reflection can be defined and what value it adds to teacher education continues to be a subject of both current and multifaceted research, the breadth of which we cannot rudimentarily reflect here. Various empirical studies address the objects, the social form or how reflection can or must be guided (e.g., Baglieri, 2008; Olteanu, 2017; Bjørnsrud & Nilsen 2019).

Casework with videotaped instructional sequences is considered particularly appropriate for fostering teachers' analysis and reflection skills (Jenset et al., 2024). Written or video-based teaching cases can be viewed as relieved of the pressure to act and make decisions in the direct pedagogical situation. The hypothesis, not uncontroversial (e.g., Hauser, 2021), established for casework and transferable to video analysis, is that reflexively trained students can act more efficiently and reflexively pedagogically after their training even under pressure (Kolbe & Combe, 2008, p. 896–897). Here, an understanding of reflection following Schön becomes apparent when the ability to perform "reflection-in-action" is to be trained from the exercise of "reflection-on-action" (McCoy & Lynam, 2021, p. 941). In this regard, Schneider et al. (2016, p. 487) distinguish the retrospective explanatory view of the conceptualization of Professional Vision (see on this subject, e.g., Sherin & van Es (2008); Blomberg, Stürmer, & Seidel (2011); Wyss, Rosenberger, & Bührer (2021)) from the prospective view of the analysis of teaching with a focus on the exploration of consequences. The assignment presented below draws on both perspectives. First, students are to analyze and justify the observed teaching and the didactic actions of the teachers based on theoretical categories. In the second step, however, just as they think about the consequences of a teacher's action's presence or absence on accessibility for all students, they must look prospectively at the lesson. Developing alternative actions addresses this competency as well. We see the identifying of blind spots required in this process as a profitable format of video-based reflection tasks. Instructional videos, in contrast to written vignettes, are suitable for this type of task precisely because students do not have to first construct complex instructional situations as mental images (Burgula, Gold, Holodynski, & Hellermann, 2016, p. 334; for a comparison of text and video cases, see also Schneider et al. (2016) and Syring et al. (2015)). However, videotaped lessons are also complex materials where meaning has to be constructed by the recipients through processes of reading (Höfer & Delere, 2022).

The videos' repeatability and consistent presentation of information offer further added value and complement the above-described claim of videos as teaching materials in a particular way. Not only do the students' analyses and reflections not have to produce a decision immediately, but they can also discuss in detail, differentiate, and, if necessary, revise altogether. It is not surprising, then, that collaborative occasions for reflection are particularly positively valued: "What is in the foreground of attention for one individual may be very different from what is in the foreground of others" (Williams, 2020, p. 700). At the

same time, group discussions always carry the risk that an equal discussion culture cannot be created or that individual group members call a distorted analysis for social reasons (Zaier, Arslan-Ari, & Maina, 2021, p. 25; Cramer, 2014, p. 349). The social and motivational factors also play a central role in whether it is more likely that one's own videos or those of others are effective (Seidel, Stürmer, Blomberg, Kobarg, & Schwindt, 2011, p. 265; Snoeyink, 2010; Kleinknecht & Poschinski, 2014). Videos can also offer multi-perspectivity because they can be reflected upon differently in different didactic contexts with different questions. This fact plays a central role, especially in the accessible implementation of instructional videos when creating audio descriptions (Wilkens, Bühler, & Bosse, 2020).

There is an intensive discussion in research about the extent to which and how reflection can be guided using instructional videos in order to increase learning effectiveness. The didactic and structured framing of video analysis is considered to be of great importance (van Es, Tunney, Goldsmith, & Seago, 2014; Körkko, 2019; Cocca & Cocca, 2016). In the example presented here, we implemented the category system of the UDL and the structured video analysis based on predefined codes. On the other hand, individual personal monitoring of all actors, as Beisiegel, Mitchell and Hill (2018) demand, cannot be achieved in our research setting.

Training inclusive-oriented teachers requires reflection on different levels to enable students to engage with their existing or newly acquired knowledge and provide them with opportunities to review and develop their attitudes. This teaching thus goes beyond teaching them category systems and definitions of terms or showing them best practice examples of successful inclusive practice. The aspiration is not for students to achieve the genesis of an inclusive self-understanding in individual teaching segments – the process of professionalization is too long-term and requires permanent support and opportunities for reflection and improvement for the teachers (Alves, Christodoulidis, Carpenter, & Hogg, 2024). Nevertheless, students can make small gains within individual tasks, which are then continuously compounded. In a yet unpublished survey of students in the winter semester 2021/22 (n=68, TU Dortmund University, subject German), we can show that the students are very aware of their attitude importance for their future didactics. Most students stated that they agreed (22%) or strongly agreed (66%) with the statement 'My attitude towards inclusion influences my actions as a teacher.' De Boer, Pijl and Minnaert (2011) also emphasize the importance of further developing these attitudes. In the different studies included, teachers were found to have predominantly negative or neutral attitudes towards inclusive education for all pupils (ibid.). These attitudes seem to be the same across all school types, especially among the student teachers' group, which can be explained by their "shared inexperience" (Gigante & Gilmore, 2018, p. 1574).

The UDL offers excellent potential in video-based reflection because, on the one hand, it requires the conscious appreciation of a broad diversity of students (Zaloudek, 2014) and, at the same time, it shows practical categories that lead in a simple form to the inclusion-oriented further development of one's own teaching. University teaching must also deal with heterogeneous groups. In order to teach all students at least basic skills of inclusive teaching in a short period of time, the categories of the UDL can provide a common starting point for individual deepening and reflection of the view on teaching. At the same time, knowledge of such student-centered approaches contributes to the development of students' self-efficacy expectations and thus their attitudes in the context of inclusion (Friesen & Cunning, 2018).

Materials and Methods

The assignment presented here is part of the first thematic complex in the practical semester of the subject Didactics of Literature. In this, essential elements of inclusive German teaching are taught in a lecture and a digital, written learning unit. These are then supposed to

be applied to a teaching sequence in the context of the video analysis to link the theoretical knowledge with practical implementation methods. For this purpose, students are to analyze two short excerpts of a recorded lesson in zoom breakout sessions using the Universal Design for Learning criteria in the German version according to Kremsner et al. (2020) and examine the accessibility for all learners (Delere, Wilkens, Höfer, Bühler, & Marci-Boehncke, 2022). To do this, they work in permanent groups throughout the semester with 3-5 of their peers as "trusted-other[s]" (Hatton & Smith, 1995, p. 41). The video sequences originate from a project on *Trailers as multimodal text summaries*, which was developed and carried out by students of a master seminar from our team on working with videos in heterogeneous learning groups.

The continuous development of the task goes along with the accompanying research within the interdisciplinary project *DEGREE 4.0 – Digital reflective teacher education 4.0: Video-based – accessible – personalized*. In this project, an accessible video-based learning platform for promoting reflection in teacher training is being developed and researched. The entire research process builds on the iterative, cyclical processes of Educational Design Research (Gravemeier & Cobb, 2006), respectively Didactical Design Research (Hußmann, Thiele, Hinz, Prediger, & Ralle, 2013). Central design principles of the concrete task in German are (digital) collaboration, discursivity, and accessible design (see on the accessible design of the instructional videos in the overall project Wilkens et al. (2020)). The aim of the research is the (further) development of local theories on subject didactic inclusion-related reflection skills of student teachers in German.

After initial testing it in one term, the assignment and technical conditions on the platform were significantly revised and conducted again in the following semester. To explore the students' work processes, their video conferences were recorded and subsequently analyzed according to strict data protection guidelines. In addition to the collection and storage under written informed consent of the students, this includes the anonymization of all group data and close cooperation with institutional data protection officers throughout the research. The same standards were valid for recording the original videos in schools. Excluded from the analysis process were audio-only recordings and erroneous files uploaded by some groups. The final sample comprises the 16 remaining working groups. While all school types are represented in the mixed group of the seminar, the elementary school group predominates (see Fig. 1). Therefore, no differentiation of different school types is made in the analysis.

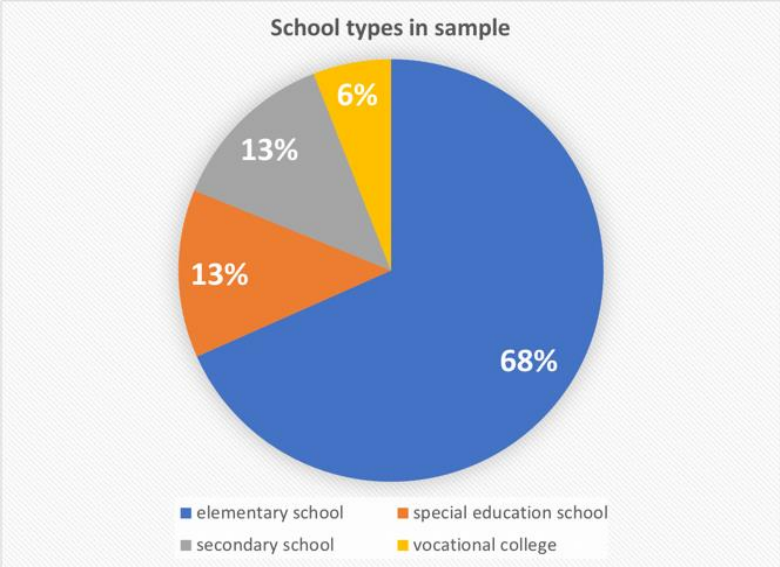

Figure1 ***School types in sample***

The evaluation of the recorded videoconferences uses the methods of a computer-assisted qualitative content analysis with the software MAXQDA® (Kuckartz & Rädiker, 2019). For this, we identified relevant scenes of the recordings and transcribed them. Subsequently, both document types were examined together. In this way, we were able to use the transcribed linguistic negotiation of the analysis in the group to gain detailed insight into reflection processes. The overarching analysis question "How do students apply UDL principles in analyzing the teaching sequence?" will be addressed from a variety of perspectives:

- Perspective of knowledge: are the students able to transfer the UDL principles to the teaching of German literature and thus examine its accessibility? What alternative proposals for action do they make, and how do they justify them?
- Perspective of attitude: do students argue based on an appreciative view of the diversity of all learners or a deficit-oriented perception of learners with disabilities?
- The codes are drawn from preliminary analysis of a design experiment before revising the assignment our theoretical framing and are also supplemented with codes drawn from the material.

We first identified productive scenes in which the students referenced the UDL in their analysis or omitted it, although the reference would be helpful here. So just like the students, we also look at blind spots, for our part, then at the level of their analyses. For scenes in which the assignment to the UDL was omitted, we assigned the corresponding category as missing to get an overview of the frequency of missing categories (for a similar approach, see Molzahn, Marci-Boehncke, & Delere (2020) or Marci-Boehncke & Vogel (2019)). The second phase of analysis assessed the extent to which the students' coding was accurate, including the correct categorization and whether the principle had been correctly applied to the lesson. The two-step procedure allows for a clear code system on the one hand and quick analytical access to the sequences on the other hand, which could provide deeper insight into the students' reflection processes. In the last step, we examined these sequences individually and reconstructed the justification strategies.

Results

The multi-step analysis of the individual recordings revealed a significant heterogeneity of our students' solutions. On the one hand, they looked more closely at different sequences of the instructional videos. Despite their brevity, a complete analysis of both clips would also not be affordable or expected within one seminar unit. The individual analyses then produced various justifications based on their prior knowledge, which in part also differed significantly within the groups. Individual subjective assessments of group members were overruled, sometimes despite the correctness of content, other members hardly got a word in edgewise, although they attempted to participate. This leads to the result that some students' solutions are not comprehensible even though we have their records. Mainly when solutions were supported by everyone but not justified at any point, this circumstance came to the fore. The decision not to quantify solutions, but to perceive the identified scenes individually in their contexts, seems appropriate against the background of these so different solutions. Very few statements can be made on what kind of alternative proposals for action the students make and what picture of inclusion emerges from their analyses. We will discuss that later.

Nevertheless, we found different answers about how the students apply the framework conception UDL in the analysis of teaching. Overall, a variety of errors in categorisation based on the UDL emerged, and difficulties were frequently encountered in certain areas in applying the categories to teaching or abstracting what is happening in the classroom. We pay particular attention to aspects that could potentially arise of the UDL itself.

As a central finding, we were thus able to reconstruct that students showed problems distinguishing between the categories *Provide multiple means of engagement* and *Provide multiple means of action and expression*. The principle – translated in the German version by Kremsner et al. (2020, p. 41) as "Verschiedene Möglichkeiten zur Teilnahme anbieten" which equals translated into English *Provide different ways to participate* – was often equated with Provide different means of action and expression. This equation could be easily understood from the language and content of the justifications:

"There is only one way to participate and that is to raise the hand. In frontal teaching. (...) Or in plenary" (1_#41:57#).

In this case, the students correctly assess the lesson design that the pupils have only one way of participation, and however, it is incorrectly categorized and assigned to the first principle of engagement.

When there is a misinterpretation of the situation and the incorrect category, a more complex case of interrelated misconceptions arises, which can be found in the very question of student participation and underlies the second central finding. Students interpret chronologically sequenced instructional methods in terms of an inclusive diversity of offerings and media used. Many groups interpret the fact that the teachers point out in the video that in the course of the lesson, writing a script as well as a filming trailer media-productively will take place as providing multiple means of action and expression:

"That you summarize that and then sort it into forms of action and expression when they present the lesson plan?" (6_#13:04#).

This interpretation does not address the fact that the individual methods of the lesson plan itself would need to be diverse and accessible to meet the UDL requirement. Some groups merely recognize that the trailer creation phase is conducted with the help of potentially technically universally accessible iPads and note this. However, none of the groups reflects that these potentials of the devices have to be made didactically usable and that the mere use of technology does not yet mean accessibility.

The students have fewer difficulties using the Provide multiple means of representation, which already seems easier to understand linguistically with a clear reference to the teacher's perspective. Here students correctly recognize that different channels of perception are addressed:

"So that it was once just linguistically and once through the (..) laminated cards just, so that they were quasi once visually shown and once linguistically" (3_#05:27#).

Similarly, students correctly recognize the importance of teaching and activating background knowledge in many groups and associate it with the corresponding principle.

"A: Oh exactly, activate background knowledge or make it available.

B: Multiple means of representation" (2_#20:44#).

Nevertheless, even in these correct analyses, only a few students even talk about how this teaching design would be conducive to accessibility for heterogeneous learning groups. This lack of reflection is also apparent in the suggestions for alternative courses of action, and these are mostly suggested to compensate for a point of criticism identified explicitly by the group:

"For example, creating mindmaps in groups to (...) to increase student activity" (9_#32:25).

Several groups consider the low activity of pupils in the introductory phase as problematic and suggest group work or digital tools for this purpose. However, these are hardly discussed against the background of their accessibility, but accepted as a potential alternative and thus improvement when mentioned. At the same time, the alternatives are often only improvements for small teaching areas but do not change the main problems, such as the lack of clarity and transparency of goals.

As announced above, it is hardly possible to make any statements about the students' attitude towards inclusive teaching. Overall, however, many students show a certain skepticism towards the possibility of including all pupils in the classroom. Inclusion is laughingly described by one student as "utopia" (9_#35:40#), by others at least as challenging. It is also clear that some students still assume a dualism of normal and non-normal learners instead of perceiving diversity of all learners:

"[…] shy students may not necessarily have the opportunity to participate as they would, or students with special needs" (11_#39:01#).

Conclusion

The purpose of this article was to present the potentials that a video-based task can offer for teaching inclusion-oriented German didactics using the UDL and the extent to which insights into students' understanding of the UDL and their attitudes towards inclusion can be gained from the analysis of the solutions.

On the reconstructive level, the findings confirm the statement of Kremsner et al. (2020) that the UDL as a translational model holds some difficulties for teachers. We can show that these occur not only during lesson planning but also for students who have to apply the UDL in the context of retrospective analysis and reflection of lessons. Although the principles were available as a spreadsheet, there were identifiable difficulties in differentiating the categories. Here, the translation into German developed by Kremsner et al. (2020) certainly plays a central role, as it opens up linguistic proximity to the pupils' options for action by using the term ‚participation'. Because of the different linguistic connotations, students no longer looked at the *why?* of teaching, the level of motivation, and engagement. They analyzed the *how?* and the opportunities for participation. Motivating, set as the central first principle, was disregarded as a result of this kind of linguistic shift. It is evident from this problem that the German translation needs to be further refined to make it easier for recipients to work with the framework model. However, working with the UDL would remain challenging for teachers and student teachers even without language problems because applying the principles to concrete classroom situations always involves translation. This may indicate the difficulties with applying the principles and the lack of reflection on potential didactic alternatives using the UDL. In addition, we can recognize that the more easily transferable principles in teaching were more applicable for the students and found fewer mistakes here. It is easier to check whether different perceptual channels are addressed than to abstract from the situation of lesson introduction whether the goals shown are both transparent and motivating for all pupils.

It is not enough to combine certain aspects of didactic design with the principles of UDL. Instead, (student) teachers have to reflect the teaching situation in its entire complexity and reconsider monocausal justification logics in the light of heterogeneous learning groups. The individual aspects of the UDL are more suitable as a starting point for discussion. Almost all groups were showing rudiments of this, highlighting the potential of UDL for reflexive tasks of this kind.

Thus, it becomes apparent that the analysis with the UDL needs a detailed framing to enable reflection on the inclusion orientation and go beyond an assignment of principles. The framing of the video-based reflection tasks demanded by Körkko (2019), among others, must therefore go beyond the reference system and the definition of analysis criteria in order to achieve in-depth reflection within the context of higher education didactic objective. Thus, the students have to explicitly deal with the goals of teaching German, which strengthens the subject didactic potential of the task. The link between video analysis and reflection on the students' attitudes also needs to be strengthened. While the UDL could be the reflection

occasion on the level of knowledge, the video analysis itself might be a reflection occasion on the level of attitudes. According to our findings, however, this does not necessarily result from engagement with the subject matter. Teachers at the university must rather initiate this consistently.

These problems are to be countered in further cycles by extended content input in the run-up to the analysis, a revised German translation of the UDL principles, and subsequent prompts for reflection. A perpetual review of the results will remain essential to increase our learning environment's effectiveness continuously.

The findings of the present study refer to a concrete learning group that is characterized by different predispositions. Nevertheless, due to the similarity to the analysis by Kremsner et al. (2020) and the fact that the problems are structurally anchored in the UDL itself, we assume that further studies could reproduce them. For this, further studies with other learning groups, a revised learning environment, and a different framework model for inclusive teaching are needed. These can be used to examine which factors are crucial for using video-based subject didactic tasks in the training of successful teachers for an inclusive school system. Thus, working with instructional videos remains both promising and preconditional in this area as well.

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The authors report there are no competing interests to declare.

References

Al-Azawei, A., Serenelli, F., & Lundqvist, K. (2016). Universal Design for Learning (UDL): A content analysis of peer-reviewed journals from 2012 to 2015. *Journal of the Scholarship of Teaching and Learning, 16*(3), 39-56. DOI: https://doi.org/10.14434/josotl.v16i3.19295

Almeqdad, Q. I., Alodat, A. M., Alquraan, M. F., Mohaidat, M. A., & Al-Makhzoomy, A. K. (2023). The effectiveness of universal design for learning: A systematic review of the literature and meta-analysis. *Cogent Education, 10*(1), 2218191. https://doi.org/10.1080/2331186X.2023.2218191

Alves, I., Christodoulidis, A., Carpenter, J., & Hogg, V. M. (2024). Practitioner Enquiry as Lifelong Teacher Education for Inclusion. *Education Sciences, 14*(3), 1-12. DOI:10.3390/educsci14030268

Baglieri, S. (2008). "I connected": Reflection and biography in teacher learning toward inclusion. *International Journal of Inclusive Education, 12*(5-6), 585-604. DOI: https://doi.org/10.1080/13603110802377631

Beisiegel, M., Mitchell, R., & Hill, H. C. (2018). The design of video-based professional development: An exploratory experiment intended to identify effective features. *Journal of Teacher Education, 69*(1), 69-89. DOI: https://doi.org/10.1177/0022487117705096

Bjørnsrud, H., & Nilsen, S. (2019). Joint reflection on action – a prerequisite for inclusive education? A qualitative study in one local primary/lower secondary school in Norway. *International Journal of Inclusive Education, 23*(2), 158-173. DOI: https://doi.org/10.1080/13603116.2018.1427153

Blomberg, G., Stürmer, K., & Seidel, T. (2011). How pre-service teachers observe teaching on video: Effects of viewers' teaching subjects and the subject of the video. *Teaching and Teacher Education, 27*(7), 1131-1140. DOI: https://doi.org/10.1016/j.tate.2011.04.008

Boer, A. de, Pijl, S. J., & Minnaert, A. (2011). Regular primary schoolteachers' attitudes towards inclusive education: A review of the literature. *International Journal of Inclusive Education, 15*(3), 331-353. DOI: https://doi.org/10.1080/13603110903030089

Bowe, F. (2000). *Universal design in education: Teaching nontraditional students*. Westport: Bergin & Garvey.

Bray, A., Devitt, A., Banks, J., Sanchez Fuentes, S., Sandoval, M., Riviou, K., Byrne, D., Flood, M., Reale, J., & Terrenzio, S. (2024). What next for Universal Design for Learning? A systematic literature review of technology in UDL implementations at second level. *British Journal of Educational Technology, 55*(1), 113–138. DOI:10.1111/bjet.13328

Burgula, K., Gold, B., Holodynski, M., & Hellermann, C. (2016). Fallbasierte Unterrichtsanalyse. Effekte von video- und textbasierter Fallanalyse auf kognitive Belastung, aufgabenspezifisches Interesse und die professionelle Unterrichtswahrnehmung von Grundschullehramtsstudierenden. *Unterrichtswissenschaft, 44*(4), 322-338.

Burgstahler, S. (2009). Universal design of instruction (UDI): Definition, principles, guidelines, and examples. University of Washington. Retrieved from https://files.eric.ed.gov/fulltext/ED506547.pdf

Capp, M. J. (2017). The effectiveness of Universal Design for Learning: A meta-analysis of literature between 2013 and 2016. *International Journal of Inclusive Education, 21*(8), 791-807. DOI: https://doi.org/10.1080/13603116.2017.1325074

CAST (Center for Applied Special Technology). (2018). Universal design for learning guidelines version 2.2. Retrieved from http://udlguidelines.cast.org

Clarà, M. (2015). What is reflection? Looking for clarity in an ambiguous notion. *Journal of Teacher Education, 66*(3), 261-271. DOI: https://doi.org/10.1177/0022487114552028

Cocca, M., & Cocca, A. (2016). Using video analysis tool and self-reflection as a response to education changes in teachers' evaluation in Mexico. In M. Flégl, M. Houška, & I. Krejčí (Eds.), *Efficiency and responsibility in education 2016* (pp. 66-72). Prague: Czech University of Life Sciences Prague.

Cramer, C. (2014). Theorie und Praxis in der Lehrerbildung. *Die Deutsche Schule, 106*(4), 344-357. Retrieved from https://elibrary.utb.de/doi/pdf/10.31244/dds.2014.04.04

Dewey, J. (1997). *How we think*. Mineola, NY: Dover Publications.

Delere, M., Wilkens, L., Höfer, H., Bühler, C., & Marci-Boehncke, G. (2022). Gestaltung einer barrierefreien videobasierten Lehr-Lern-Umgebung zur Reflexion digitaler Inklusionsorientierung im Fach Deutsch. In M. Stein, M. Jungwirth, N. Harsch, Y. Noltensmeier, & N. Willenberg (Eds.), Di*versität Digital Denken – The Wider View. Tagungsband* (379–382). Münster: WTM.

De Vroey, A., Lecheval, A., & Symeonidou, S. (2023). Supporting All Educators to Take Part in Teacher Professional Learning for Inclusion. *Trends in Higher Education, 2*(2), 320–331. DOI:10.3390/higheredu2020018

Edyburn, D. L. (2007). Technology-enhanced reading performance: Defining a research agenda. *Reading Research Quarterly, 42*(1), 146-152. DOI: https://doi.org/10.1598/RRQ.42.1.7

Friesen, D. C., & Cunning, D. (2020). Making explicit pre-service teachers' implicit belief https://doi.org/10.1080/13603116.2018.1543730 s about inclusive education. *International Journal of Inclusive Education, 24*(14), 1494-1508. DOI: https://doi.org/10.1080/13603116.2018.1543730

Gravemeijer, K., & Cobb, P. (2006). Design research from the learning design perspective. In J. van den Akker, K. Gravemeijer, S. McKenney, & N. Nieveen (Eds.), *Educational design research: The design, development and evaluation of programs, processes and products* (pp. 45-85). London: Routledge.

Gigante, J., & Gilmore, L. (2020). Australian preservice teachers' attitudes and perceived efficacy for teaching in inclusive classrooms. In*ternational Journal of Inclusive Education, 24*(14), 1568-1577. DOI: https://doi.org/10.1080/13603116.2018.1545875

Hall, T. E., Cohen, N., Vue, G., & Ganley, P. (2015). Addressing learning disabilities with UDL and technology: Strategic reader. *Learning Disability Quarterly, 38*(2), 72-83. DOI: https://doi.org/10.1177/0731948714544375

Hatton, N., & Smith, D. (1995). Reflection in teacher education: Towards definition and implementation. *Teaching and Teacher Education, 11*(1), 33-49. DOI: https://doi.org/10.1016/0742-051X(94)00012-U

Hauser, B. (2021). Können sie es nachher besser? Oder können sie nur besser darüber reden? *Journal für LehrerInnenbildung, 01*, 26-35. Retrieved from https://elibrary.utb.de/doi/pdf/10.35468/jlb-01-2021-02

Höfer, H., & Delere, M. (2022). Unterrichtsvideos lesen? Grundlegung einer Lesetheorie der Nutzung von videografierten Unterrichtsfällen in der Lehramtsausbildung. *MiDU – Medien Im Deutschunterricht, 4*(2), 1-16. DOI: https://doi.org/10.18716/ojs/midu/2022.2.2

Hußmann, S., Thiele, J., Hinz, R., Prediger, S., & Ralle, B. (2013). Gegenstandsorientierte Unterrichtsdesigns entwickeln und erforschen: Fachdidaktische Entwicklungsforschung im Dortmunder Modell. In M. Komorek & S. Prediger (Eds.), *Der lange Weg zum Unterrichtsdesign: Zur Begründung und Umsetzung fachdidaktischer Forschungs- und Entwicklungsprogramme* (25–42). Münster: Waxmann.

Jenset, I. S., Tengberg, M., Sigurðardóttir, A. K., Sigþórsson, R., Magnusson, C. G., & Brataas, G. (2024). The benefits of using videos for developing teachers' professional vision. In M. Blikstad-Balas & I. S. Jenset (Eds.), *Using Video to Foster Teacher Development* (17–32). London: Routledge. DOI:10.4324/9781003427414-3

Kaplan, I., & Lewis, I. (2019). Promoting inclusive teacher education. *Advocacy Guide 1. Introduction*. Paris: UNESCO.

Killion, J. P., & Todnem, G. R. (1991). A process of personal theory building. *Educational Leadership, 48*(6), 14-17.

Kleinknecht, M., & Poschinski, N. (2014). Eigene und fremde Videos in der Lehrerfortbildung. *Zeitschrift für Pädagogik, 60*(3), 471-490.

Kolbe, F.-U., & Combe, A. (2008). Lehrerbildung. In W. Helsper & J. Böhme (Eds.), *Handbuch der Schulforschung* (877–901). Wiesbaden: Springer VS.

Körkkö, M. (2019). Towards meaningful reflection and a holistic approach: Creating a reflection framework in teacher education. *Scandinavian Journal of Educational Research, 65*(2), 258-275. DOI: https://doi.org/10.1080/00313831.2019.1676306

Kremsner, G., Proyer, M., & Baesch, S. (2020). Vom Universal Design for Learning zum Local Universal Design for Inclusive Education. *Sonderpädagogische Förderung heute, 65*(1), 34-46.Retrieved from: https://www.beltz.de/fachmedien/paedagogik/zeitschriften/sonderpaedagogische_foerderung.html?tx_beltz_journal[controller]=Journal&tx_beltz_journal[action]=article&tx_beltz_journal%5Barticle%5D=44561&cHash=e6db370a2c8a7acc4769f5e49b491745#:~:text=DOI-,10.3262/SZ2001034,-Angebot%20f%C3%BCr%20Bibliotheksnutzer

Krotz, F. (2017). Sozialisation in mediatisierten Welten. In D. Hoffmann, F. Krotz, & W. Reißmann (Eds.), *Mediatisierung und Mediensozialisation* (21–40). Wiesbaden: Springer VS. DOI: https://doi.org/10.1007/978-3-658-14937-6_2

Kuckartz, U., & Rädiker, S. (2019). *Analyse qualitativer Daten mit MAXQDA: Text, Audio und Video*. Wiesbaden: Springer Fachmedien. DOI:10.1007/978-3-658-22095-2.

Mace, R. L., Hardie, G. J., & Place, J. P. (1991). *Accessible Environments: Toward Universal Design*. The Center for Universal Design. Retrieved from https://projects.ncsu.edu/ncsu/design/cud/pubs_p/docs/ACC%20Environments.pdf

Marci-Boehncke, G. (2018). Von der integrierten zur inklusiven Medienbildung. In T. Hug (Ed.), *Medienpädagogik—Herausforderungen für Lernen und Bildung im Medienzeitalter* (49–64). Innsbruck: Innsbruck University Press. Retrieved from http://rgdoi.net/10.13140/RG.2.2.32062.59207

Marci-Boehncke, G., & Rath, M. (2011). 'Medienkonvergenz im Deutschunterricht' Einleitung zu diesem Band. In G. Marci-Boehncke & M. Rath (Eds.), *Medienkonvergenz im Deutschunterricht* (13–20). München: kopaed.

Marci-Boehncke, G., & Vogel, T. (2019). How Do Teachers Integrate Digital Media into Pedagogical Action and Professional Self-Image? *EDULEARN19 Proceedings*, 6369-6376. DOI:10.21125/edulearn.2019.1523.

McCoy, S., & Lynam, A. M. (2021). Video-based self-reflection among pre-service teachers in Ireland: A qualitative study. *Education and Information Technologies, 26*, 921-944. DOI: https://doi.org/10.1007/s10639-020-10299-w

Merz-Atalik, K. (2017). Inklusive Lehrerbildung oder Inklusionsorientierung in der Lehrerbildung?! Einblicke in internationale Erfahrungen und Konzepte. In S. Greiten, G. Geber, A. Gruhn, & M. Köninger (Eds.), *Lehrerausbildung für Inklusion: Fragen und Konzepte zur Hochschulentwicklung* (48–63). Münster: Waxmann.

Meyer, A., Rose, D. H., & Gordon, D. (2014). *Universal Design for Learning: Theory and Practice*. Wakefield, MA: CAST Professional Publishing.

Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record, 108*(6), 1017–1054. DOI: https://doi.org/10.1111/j.1467-9620.2006.00684.x

Molzahn, M., Marci-Boehncke, G., & Delere, M. (2021). Digital Media in Schools and Universities: First Steps for a Community of Practice with Digital Video Analysis. *Journal of International Scientific Publications: Educational Alternatives, 19*, 50-66.

Olteanu, C. (2017). Reflection-for-action and the choice or design of examples in the teaching of mathematics. *Mathematics Education Research Journal, 29*(3), 349–367. DOI: https://doi.org/10.1007/s13394-017-0211-9

Pit-ten Cate, I. M., Markova, M., Krischler, M., & Krolak-Schwerdt, S. (2018). Promoting Inclusive Education: The Role of Teachers' Competence and Attitudes. *Insights into Learning Disabilities, 15*(1), 49-63. Retrieved from https://eric.ed.gov/?id=ej1182863

Schlüter, A.-K., & Melle, I. (2020). Die Evidenz und Wirksamkeit des Universal Design for Learning. *Sonderpädagogische Förderung heute, 65*(1), 59-67.

Schneider, J., Bohl, T., Kleinknecht, M., Rehm, M., Kuntze, S., & Syring, M. (2016). Unterricht analysieren und reflektieren mit unterschiedlichen Fallmedien: Ist Video wirklich besser als Text? *Unterrichtswissenschaft, 44*(4), 474-490.

Schön, D. A. (2016). *The reflective practitioner: How professionals think in action*. Abingdon: Routledge.

Scott, S. S., Mcguire, J. M., & Shaw, S. F. (2003). Universal Design for Instruction: A New Paradigm for Adult Instruction in Postsecondary Education. *Remedial and Special Education, 24*(6), 369-79. DOI: https://doi.org/10.1177/07419325030240060801

Seidel, T., Stürmer, K., Blomberg, G., Kobarg, M., & Schwindt, K. (2011). Teacher learning from analysis of videotaped classroom situations: Does it make a difference whether teachers observe their own teaching or that of others? *Teaching and Teacher Education, 27*(2), 259-267. DOI: https://doi.org/10.1016/j.tate.2010.08.009

Sherin, M. G., & van Es, E. A. (2008). Effects of Video Club Participation on Teachers' Professional Vision. *Journal of Teacher Education, 60*(1), 20-37. DOI: https://doi.org/10.1177/0022487108328155

Snoeyink, R. (2010). Using Video Self-Analysis to Improve the "Withitness" of Student Teachers. *Journal of Digital Learning in Teacher Education, 26*(3), 101-10. DOI: https://doi.org/10.1080/10402454.2010.10784641

Spinner, K. H. (2002). Handlungs- und produktionsorientierter Literaturunterricht. In K. M. Bogdal & H. Korte (Eds.), *Grundzüge der Literaturdidaktik* (247–257). München: DTV.

Story, M. F., Mueller, J. L., & Mace, R. L. (1998). *THE UNIVERSAL DESIGN FILE: Designing for People of All Ages and Abilities*. The Center for Universal Design. Retrieved from https://projects.ncsu.edu/ncsu/design/cud/pubs_p/pudfiletoc.htm .

Syring, M., Bohl, T., Kleinknecht, M., Kuntze, S., Rehm, M., & Schneider, J. (2015). Videos oder Texte in der Lehrerbildung? Effekte unterschiedlicher Medien auf die kognitive Belastung und die motivational-emotionalen Prozesse beim Lernen mit Fällen. *Zeitschrift für Erziehungswissenschaft, 18*(4), 667-685. DOI:10.1007/s11618-015-0631-9.

Tzivinikou, S. (2014). Universal Design for Learning - Application in Higher Education: a Greek Paradigm. *Problems of Education in the 21st Century, 60*(1), 156-66. DOI:10.33225/pec/14.60.156.

UNO (United Nations). (2021). *Convention on the Rights of Persons with Disabilities and Optional Protocol*. Retrieved from https://www.un.org/disabilities/documents/convention/convoptprot-e.pdf.

van Es, E. A., Tunney, J., Goldsmith, L. T., & Seago, N. (2014). A Framework for the Facilitation of Teachers' Analysis of Video. *Journal of Teacher Education, 65*(4), 340-356. DOI: https://doi.org/10.1177/0022487114534266

Williams, A. T. (2020). Growing student teachers' reflective practice: Explorations of an approach to video-stimulated reflection. *Reflective Practice, 21*(5), 699-711. DOI: https://doi.org/10.1080/14623943.2020.1798917

Wilkens, L., Bühler, C., & Bosse, I. (2020). Accessible Learning Management Systems in Higher Education. In M. Antona & C. Stephanidis (Eds.), *Universal Access in Human-Computer Interaction. Applications and Practice* (315–328). Cham: Springer International Publishing.

Wyss, C., Rosenberger, K., & Bührer, W. (2021). Student Teachers' and Teacher Educators' Professional Vision: Findings from an Eye Tracking Study. *Educational Psychology Review, 33*, 91-107. DOI: https://doi.org/10.1007/s10648-020-09535-z

Wyss, C., & Mahler, S. (2021). Mythos Reflexion. Theoretische und praxisbezogene Erkenntnisse in der Lehrer*innenbildung. *journal für lehrerInnenbildung, 01*, 16-25. Retrieved from https://elibrary.utb.de/doi/pdf/10.35468/jlb-01-2021-01

Yuwono, I., Mirnawati, M., Kusumastuti, D. E., & Ramli, T. J. (2023). Implementation of Universal Design For Learning (UDL) Concepts on Learning in Higher Education. *Education. Innovation. Diversity., 2*(7), 16–23. DOI: https://doi.org/10.17770/eid2023.2.7355

Zaier, A., Arslan-Ari, I., & Maina, F. (2021). The Use of Video Annotation Tools and Informal Online Discussions to Explore Preservice Teachers' Self- and Peer-Evaluation of Academic Feedback. *Journal of Education, 201*(1), 19-27. DOI: https://doi.org/10.1177/0022057420903269

Zaloudek, J. A. (2014). Radical Accommodation: Course Design for Extreme Access to Education. Conference Proceedings. *The Future of Education. 4th Edition*. Retrieved from https://conference.pixel-online.net/FOE/files/foe/ed0004/FP/0857-SET544-FP-FOE4.pdf.

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PRINCIPALS' SERVANT LEADERSHIP PRACTICES AND ACCOUNTABILITY FOR IMPROVED SCHOOL PERFORMANCE: FROM SOUTH AFRICAN FAITH-BASED SCHOOLS OF THE CHALLENGING CONTEXT

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Abstract. *There is a rich body of academic research focused on servant leadership practices and school performance in South African public and faith-based schools. However, there is a notable gap in research on how these principals deal with the challenges of accountability for quality academic performance in challenging contexts. Consequently, this article aims to explore principals' experience of servant leadership and accountability for improved school performance in challenging contexts in faith-based schools and identify mechanisms such schools apply to deal with these challenges. The study applied a qualitative research method with a case study design. The target population comprised six principals who were purposefully and conveniently selected from faith-based schools operating in challenging contexts in three rural provinces of South Africa. The researchers collected data using semi-structured interviews and followed a thematic approach. Key findings of the study indicated that principals of faith-based schools while practicing servant leadership apply the following principles to enhance school performance: Promoting common vision, enhancing collaborative climate through teamwork, inculcating positive relationships among teams, and practicing integrity and credibility as core values. Furthermore, participants further indicated that through the practices of these mechanisms they are able to respond to the call for accountability demands in challenging contexts. The findings further revealed that faith-based school principals of the challenging contexts sometimes find it difficult to keep the momentum due to absenteeism, teachers' retention, and lack of community involvement.*
Keywords: *Servant leadership, Accountability, School Performance, Faith-based schools, Challenging context*

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Introduction

There is an increasing demand for school principals to be accountable for school performance (Marsh, 2016). Furthermore, Welch (2015) pointed out that ever-changing contexts of socio-economic nature pose challenges for school leaders to look at their leadership role from different perspectives in order to improve school performance in the challenging contexts where school performances continuously remain unchanged. Consequently, school principals are faced with challenging demands and expectations in various forms of accountability from multiple stakeholders. This study uses the theory of servant leadership to understand the aspects employed by the leaders of faith-based schools to balance their leadership practices and accountability for academic performance in the rural context.

Accountability for school performance has always been the central aspect of the education systems worldwide (Walker, 2015). As such the role of school principals is always associated with the demand for school performance. Multiple duties such as administrative, and managerial coupled with the high demand for academic performance in rural contexts emphasised the principals' accountability. School leader's accountability for academic performance has been a focal point in global education sectors for decades (McDonnell, 2013;

& Walker 2015). This emphasis on accountability is not any different in the South African rural context.

Challenges of the South African rural schools, such as poor parental involvement, which creates a paradoxical situation for the improvement of school performance due to multifaceted circumstances such as parents' illiteracy, poverty, broken family cases, poor parental involvement, teachers' absenteeism amongst others (Mbokazi 2015, p. 472; Oakes & Maday, 2009; Heystek, 2022). Amid circumstances of this nature, school principals find it difficult to continue with their work while influencing the context that affects their work and school performance. Furthermore, it is also noted that sometimes school governing body (SGB) members are not experienced or qualified to perform their expected duties, although they are a key component of the interaction between the school and the community and principals' accountability (Zulu, Bhengu & Mkhize, 2021, p. 16).

Academic research thus far emphasised principals' accountability mainly on the nature and impact of external accountability policies and mandates on principals' work (Seashore Louis & Robinson, 2012), particularly on academic performance, school-based management, learning targets and data use, and curriculum innovations (Cheng, 2009; Lee et al., 2012; Walker, 2015; Walker & Ko, 2011). From this generic focus on all schools, this study is interested to learn how faith-based school principals manage their accountability while practicing the principles of servant leadership in their contexts with the aim to have improved academic performance. This study specifically focusses on this issue since there have been limited studies on this specific phenomenon in the South African context (Sikhakhane, 2016).

Faith-based schools, like public schools are subject to governments' educational requirements prescribed by the *South African Schools Act of 1996*. Furthermore, these schools are overseen by their respective independent school authorities who in turn report to the country's Department of Basic Education. In addition to that, there is a parental demand seeking a better education for their children from faith-based schools. This implies that school principals of Faith-based schools wear triple hats, namely, one of the Department of Basic Education, of the umbrella bodies for the specific independent schools, and parental demands. There are multiple accountabilities demands placed on school leaders which are increasing expectations from various stakeholders Wang (2021). School principals are basically held accountable to anyone who forms part of the school team, including learners, parents/guardians, educators, communities, the umbrella bodies, Department of Education, and the entire school system.

Consequently, how school leaders in challenging contexts practice servant leadership and respond to accountability for academic performance in their challenging contexts is the empirical question for this article.

Faith-based schools selected for this study also form part of those schools in the rural context. On the other angle regardless of the challenges schools situated in poor rural communities' encounter "tiny band" of them provide some of the highest quality education Taylor (2014, p. 73). This is confirmed by the steady progress of some of the rural faith-based schools in matric results in matric outcomes. There are those that are performing heroic deeds while under difficult conditions and serve as role models for the rest of the system.' Three of these 'tiny band' of schools are the focus of our study through the lens of servant leadership to study how they practiced the principles of servant leadership while maintaining improved academic performance. Greenleaf (1977, p. 55), who coined the term "servant-leadership", noted, "principals/administrators who work in faith-based education contexts should be fundamentally predisposed to exhibiting principles of servant-leadership in their day-to-day lives, as that can result in bringing positive outcomes".

The constant decline in quality academic performance in disadvantaged contexts increases demands on principals' leadership and management of the schools. Amidst the

difficult working conditions principals are always under pressure ensuring improved outcomes in the schools (Du Plessis, 2017).

Faith-based schools are not immune to the contextual factors that challenge their leadership and enhance the demand for accountability. Despite the innumerable factors that challenge their leadership, accountability for academic performance rests with the school principals. These principals are expected to balance their leadership and accountability while at the same time supporting educators to ensure sustained academic performance.

The following questions will address the phenomenon under investigation:

i. How do school principals of faith-based schools in rural contexts balance their servant leadership and accountability for sustained academic performance?
ii. What strategies can be adopted to balance school leadership and accountability in faith-based schools in rural contexts for the improvement of sustained academic performance?

The main aim of this article was to explore how school principals of faith-based schools in rural contexts balance their leadership and accountability for improved school performance. In line with this we aimed at exploring strategies that could be adopted to balance school leadership and accountability in faith-based schools in rural contexts for the improvement of sustained academic performance. In this qualitative research we employed individual semi-structured interviews to collect data from six principals of the rural schools who were selected through purposive sampling from three South Africa rural provinces.

Context of the Faith-based schools

According to the Department of Basic Education, in South Africa, there were 1 855 registered independent schools, which constitute 7.3% of all 25 574 South African schools (Department of Basic Education, 2020). Of this total, an estimated 1253 schools belong to faith-based denominations and are coordinated by the National Alliance of Independent Schools of South Africa (NAISA). Schools that were selected for this study are solely those schools that form part of schools coordinated by NAISA.

The decision to focus this article on faith-based schools was made due to the fact that faith-based schools are distinct because of the unique characteristics and ethos, which shape their aims and environments (Halstead & McLaughlin, 2015; McGettrick, 2015; Sacks, 2004). At the same time, their distinguishing characteristics are influenced by the specific faith of that school, religious traditions, and the protocols used to select learners and hire staff (Halstead & McLaughlin, 2005; McGettrick, 2005). This context, values, and beliefs influence their procedures and the leadership practices of principals.

This category of schools is unique due to its characteristics, ethos, and religious traditions that characterize them (McLaughlin, 2015, p. 89). These schools possess a "dual identity" and "dual missions" (Grace, 2009, p. 146). This dual character is an upshot of the competitive market and accountability forces created by government policies, and of the reforms and influences from the religious communities that oversee the schools (McGettrick, 2015: p. 106). Consequently, these leaders are held accountable for school performance both to the government and their umbrella bodies. In South Africa, faith-based schools represent a wide range of religions and faiths and in their majority function under the auspices of the National Alliance for Independent schools of South Africa (NAISA).

Leadership of faith-based schools and accountability

This study focused its attention on faith-based school leaders' experiences of their servant leadership and accountability for improved academic performance in their contexts.

In Faith-based schools integrity of school principals is of paramount importance and integrity and accountability go hand in hand. According to Shula, Heystek & Van Vyk (2022, p. 16), "if people do not believe in a leader, they will not believe the leader's message". Some academic scholars argue that to be believed, leaders at these schools must personify the life they advocate (Brown, 2015, p. 212). They must act consistently with their beliefs (Hallinger, 2018, p. 70). Furthermore, the leader of a faith-based school needs to lead a life of integrity Hallinger (2018, p. 68). It is also recommended that school leaders are expected to combine the professional and spiritual aspects of their lives as they serve and are accountable to the school community for academic improvement (Edwards (2014, p. 56). Furthermore, the practices of leaders are value-driven (Striepe, Clarke, & O'Donoghue 2014, p. 94). Their perspectives however on leadership are shaped by their own philosophy and spirituality and enhanced by that of the affiliated faith of the school. The exposition also served as the basis for the investigation regarding servant leadership theory. This study is underpinned by the theory of servant leadership Greenleaf (1977) to understand how principals balance their leadership and accountability for improved school performance- in the rural context.

Researchers call this the wide spectrum of stakeholders forms as hierarchal web that influences principals' work in the forms of political, legal, bureaucratic, performance-based, moral, professional, and market accountability (Bracci, 2009; Wallenius et al., 2018). In this concept accountability is seen as a relational and hierarchical forming different layers with specific stakeholders. School leaders are accountable to their own staff, to their SGBs, to the legislation that guide their work (Gonzalez & Firestone, 2013). These authors further noted that accountability demands from various actors complicate principals' work and render it more contextual and unpredictable. However, their study focused on public schools whereas ours solely looks at how the principals of the faith-based schools in challenging contexts experienced their servant leadership practices and accountability for the improvement of academic performance. Consequently, the next section describes the nature of servant leadership.

Theoretical Framework

This study is underpinned by the theory of servant leadership Greenleaf (1970 and 1977) to understand how principals balance their leadership and accountability for improved school performance- in the rural context. The phrase "Servant-leadership" was coined by Robert Greenleaf in 1970. Greenleaf the originator of the theory, notes that servant leadership exists between two extremes: leader-first and servant-first. According to Greenleaf (1970, p. 27) servant leadership:

> *"Begins with the natural feeling that one wants to serve first. Then conscious choice brings one to aspire to lead. That person is sharply different from one who is a leader first. The difference manifests itself in the care taken by the servant first to make sure that other people's highest priority needs are being served"*

The above reference indicates that the empowerment and well-being of others is crucial in servant leadership practices. Such perspective is regarded as "a new leadership approach [that] attempts to enhance the personal growth of workers and improve the quality of the organization through a combination of teamwork, shared decision-making and caring behaviour" (Taylor, 2007, p. 404).

In his initial essay, The Servant as Leader, Greenleaf (1970) states that a leader's quest for a specific outcome is easy to identify, but difficult to explain (Greenleaf, 1977: p. 48). He further notes that effective leaders possess the ability to point others toward the same goal. However, the one who identifies the goal must garner the followers' trust because the followers share the burden of risk. In other words, servant leaders share and delegate the task

as such they are ablet to balance their leadership role and accountability that follows of their role.

Spears (2019, p 7) summarised the works of Greenleaf and developed ten characteristics that are normally accepted among leadership researchers as characteristics that identify leaders as servant leaders. These are "listening, empathy, healing, awareness, persuasion, conceptualization, foresight, stewardship, growth, and building community". These ten characteristics are generally acknowledged as the foundation of servant leadership. These characteristics are believed to guide the leaders to balance their role as leaders and accountability for the outcome. The current literature summarises these characteristics of servant leadership as focused on developing others, teamwork (collaborative work), inculcating relationships through community building, persuasion and enhancing common vision.

Focused on development of others

The first crucial aspect of servant leadership practices reflects both the actions of a servant who leads and of a leader who serves. It is denoted that servant leadership is based on the overarching action of caring for others and this dimension is seen as an "other-oriented approach to leadership" (Franco & Antunes, 2020 & Eva et al., 2019, p. 114). Greenleaf (1977, pp. 13–14) conceptualises the vital aspects of this criterion by asking, "Do those served grow as persons; do they, while being served, become healthier, wiser, freer, more autonomous, more likely themselves to become servants?". Franco & Antunes (2020, p. 351) emphasise that servant leadership is based on the overarching action of caring for others and Eva et al. (2019, p. 114) see this dimension as an "other-oriented approach to leadership".
Some researchers define servant leadership as follows: (1) it is 'others' oriented, (2) the priority is about the needs and the interests of the followers, and (3) it develops others to be leaders themselves (Eva et al., 2019). Furthermore, there is an understanding that servant leadership practices extensively promote a sense of harmony, and unity among the teams and enhances people's perceptions of their communal duties and responsibilities (Gultekin1 and Kara, 2022: P. 136).

Greenleaf (1977) points out that servant leader is known as a leader with a genuine concern about the hopes and needs of his followers and this paradigm makes servant leadership different from other types of leaderships. Therefore, regardless of the contextual challenges, as the leaders practice its principles followers are motivated and in their turn improve the quality of teaching and learning process. Due to its ability to create a positive working climate among teams and motivate employees towards their professional commitment servant leadership may become the most widely used model in the coming decades (Northouse, 2018).

Servant leadership through teamwork

Servant leadership extends beyond the desires of the self-ego and builds a working climate that generates the employee's empowerment (Shula, Van Wyk & Heystek, 2022). The inspirational and moral component of servant leadership is important for the development of teams. Teachers are more likely to work collaboratively as a team if they have inspirational and moral confidence in their leader (Shula, 2023). Irving and Longbotham (2007) examined the relationship between servant leadership and team effectiveness which further smoothed the accountability demands which was to be placed on the principals alone. Moreover, to the extent that servant leaders are also models of virtue, we expect the followers will strive for excellence in their teams (Wang, 2021, p. 48).

Inculcating positive relationships

The previous study indicated that servant leaders have a critical responsibility for developing the school community and building a caring relationship with all school stakeholders (Shula, Wyk & Heystek, 2023). Undoubtably enhancing positive relationships should serve as a mechanism for effective school leadership (Zulu et, al., 2018, p. 32). Within this ambit of concern for others, servant leaders have a critical responsibility for developing the school community and building a caring relationship with all school stakeholders. Furthermore, it is believed school leaders of faith-based schools through their endeavour to inculcate positive relationships with their teams gain their confidence, improve the working climate, minimise the challenges of the context and improve the school performance together as a team.

Integrity, trustworthiness as model

Kgatle (2018) describes the servant leader as a model of integrity, trustworthiness, and intelligent reasoning. Furthermore, the study of Ling, Lin & Wu (2016) confirms that servant leadership can be effective at different organisational levels, including schools, and this leadership style enhances service delivering behaviours in leaders. Consequently, through their integrity and trustworthiness they live what they preach which serve as a source of inspiration to followers to improve the working conditions in the school.

Methodology

To understand the servant leadership practices and accountability by faith-based school principals we employed a qualitative research design with an interpretive paradigm. Mokala (2021) posits that a qualitative research methodology the aim of the interpretive paradigm in research is to understand the subjective experience of the participants. Furthermore, Creswell, Hanson, Clarke Plano & Morales (2007) posit that researchers who use an interpretivist or constructivist mode usually depend upon the perspective of the respondents in connection with the phenomenon under study. Consequently, in order to explore servant leadership practices and accountability for school performance in challenging contexts, this researcher had to interact with the participants and work with data located within the qualitative approach. Hence it was our interest to learn from the experiences of the leaders in their natural environment.

We employed a case study method to have an in-depth exploration of the present-day phenomenon within its natural setting (Yin, 2018), which is the servant leadership practices of principals in a challenging context and their management of the accountability. Similarly, (Cohen, Manion, & Morrison 2018) further affirm that the case study approach aims to depict the reality of what it is like to be in a specific life situation. Rule and John (2011) further point out that a case study is a systematic and thorough investigation of a specific occurrence that is context-based with a view to generating understanding.

As case studies are descriptive in nature, it was necessary to identify “information-rich cases” (Patton, 2002: p. 230). Consequently, we used purposeful sampling as the sampling strategy for this study. We decided to use this strategy, understanding that purposeful sampling could assist in the identification of significant understandings and practices of leadership and can enable a study to unearth significant similarities or differences between the varied contexts (Patton, 2002). We were of the view that the use of purposeful sampling would enable rich, descriptive cases to be developed by creating an in-depth personal level of understanding which aligns with the rationales of the interpretive perspective and case study design.

The three faith-based schools that were selected for the study comprised one Catholic, one Anglican, and one interdenominational school, operating in challenging rural contexts.

Two key factors were considered when the researchers selected the particular schools. The primary factor was that the schools needed to represent the definition of the study of a faith-based school. In other words, the selected faith-based schools needed to have distinct aims and environments that are influenced by the affiliation of the schools with a particular faith. The second factor is that the schools needed to be representative of the varied types of faith-based schools found in South Africa operating within the challenging contexts.

The researchers employed semi-structured interviews as the method for this research as they would afford more flexibility than structured interviews, the opportunity to probe more deeply into an issue, and for people to construct meaning as well (Burns, 2000). Thus, semi-structured interviews were consistent with the paradigm and the interpretivist theoretical perspective within which this research existed. At each school the principals and deputy principals were selected as participants, thus six individual semi-structured interviews. The interviews were between thirty and fifty minutes in length. Following the interviews, the recordings were transcribed and made available for validation and verification by the participants.

Since data in qualitative research is prepared, organised according to either text, diagrams, or images, and then reduced into themes through coding and condensing the codes we then decided to present as tables or discussions (Maree, 2016, p. 104–126).

The researchers took the following steps in the process of data analysis. After reading data collected a preliminary thematic framework was constructed to identify the topics that would be refined into themes. This was followed by the indexing and rearranged sections of the data that would belong together. The data was reviewed carefully to refine the data items and to ensure that they would cover the same aspects (Spencer, Ritchie, Ormston, O'Connor & Barnard, 2014). Moreover, the deductive analysis makes use of a priori codes to obtain the second level of understanding. These codes were clustered around the major themes of the phenomenon and the theory of action. To respect the views of the participants, I have used in vivo coding in the categorisation (Chiniaral, 2016, p. 27).

In qualitative research, trustworthiness relates to how the perceptions of the participants have been represented in the final account (Cresswell & Miller, 2004). To demonstrate trustworthiness, it was important that we needed to provide a detailed account of the methodological approach adopted in the process of collecting and analysing the data (Bailey, 2007). One approach to establishing trustworthiness in qualitative research is by the use of four criteria: credibility, dependability, confirmability, and transferability.

Research results

In this section, we discuss the interview findings related to the role of school principals as servant leaders and accountability for quality performance in faith-based school in the challenging contexts of South Africa. Our discussions with the leaders of faith-based schools focused mainly on the characteristics of servant leadership and mechanisms used to be accountable for school performance. Therefore, the findings revolved around five main themes namely, leading as a team, inculcating positive relationships, common vision, credibility and integrity.

Promoting a common vision

School principals of the challenging contexts are of the common view that promoting a common vision is a great source to respond to accountability in servant leadership practices. Principal E shared: everyone should understand what happens in the school, be it parents,

teachers, learners and also our stakeholders. In fact, they should be involved from the very beginning.

Principal C shared similar comment: The goal of the school should be clear to everyone. I'm here to build the school community but not alone. I'm here as a steward of the values and ethos of the school but not alone. The vision and values I shared before belong to everyone. I firmly believe that where there is a common vision there is a common accountability.

Principal A further on this note: our common vision holds all of us accountable for our actions and decisions in our schools. Consequently, our school has been one of the best performing schools in this province while operating under challenging circumstances due to the common vision we have created. As a result, it is safe to say that having a common vision is essential for the effective servant leadership practices especially in servant leadership and school performance.

Leaders of faith-based schools of the challenging contexts are convinced that by inculcating a common vision they are able to respond to the demand for accountability of school performance. These links to the characteristic of community building where servant leaders are able to create a conducive working environment for the good of the school.

In the academic research conducted on the principals' servant leadership in the contexts of disadvantaged public schools in Gauteng, educators indicated that their principals practiced servant leadership techniques such as organisational stewardship, and a persuasive approach in their day-to-day practices (Swart, 2022). These practices are believed to be partly responsible for the improvement of academic performance in those schools.

Leading as a team

School leaders indicated that they are aware of the challenging context in which they are working. In this context, faith-based school leaders value the aspect of leading as a team which according to them serves as one of the mechanisms to deal with accountability and improves the teaching learning process in the school.

The central meaning of the category, 'leading as a team', was encapsulated in Principal B's comment:

> *I think in servant leadership one becomes part of a team, and it's about shared decision-making. I base this on my experience here at my school. My school is known as one of the best schools in the province. It is the best not because the principal is the best, but because everyone is committed, and everyone is going the extra mile to ensure its excellence. All of us speak the same language and wear the same mask … and we have one vision as a team and that is to see our school prosper, our children succeed. We are accountable together.*

The comment of this participant is representative of a common perspective among the school leaders, that leadership involves the interactions of groups of people instead of being confined to an individual position of authority. Under 'leading as a team' resulted in establishing and maintaining relationships, 'establishing teamwork', and 'establishing a common vision'. This further eases the accountability of the principals for school performance because every aspect of school progress is shared.

Inculcating positive relationships

Principal D noted:

> *Relationships underpin many aspects of our school's daily life. Relationships are crucial, they are crucial in the classroom, and they are crucial in the staff room. There is no teamwork without positive relationships, there is no improved academic performance without positive relationships, and there is no success at all in any aspect without building positive relationships. Consequently, we are all in the same game from the beginning till the end. Relationships are backbones for our success and accountability.*

Deputy Principal C highlighted during the discussion, "We believe in relationships. However, relationships work where there is teamwork, teamwork becomes effective where there are positive relationships. Being accountable to each other is the bases for our accountability to the higher authority and our umbrella bodies as faith-based schools. That has a significant amount of impact on school performance in general".

Principal A further noted on the same matter, "… in order to succeed in establishing positive relationships and teamwork there has to be a common vision. It is only where there is a common vision that schools' academic performance gets improved, and this is where servant leadership comes in and here is where the accountability comes in".

The essence of this theme is mirrored by Duignan (2012:119) who emphasises that effective leaders should always facilitate and inculcate teamwork and collaborative leadership for the success of their organisations and share responsibility. In addition to that, the participants are in agreement with Chiniara and Bentein (2016) who pointed out that united team members work together to accomplish the set objectives and this coherence trickles down to the support of other groups within the work.

Credibility and integrity

Faith-based school leaders noted that in their servant leadership they are called to act with integrity and show credibility in whatever they do and act.

Principal C noted:

> *[A]s leaders of faith-based schools, if we are not credible in every aspect and do not maintain integrity in our acting and leading, our efforts become fruitless from all angles. I always tell my colleagues at any given opportunities, let us practice what we preach to our children.*

Under the same note Principal D noted:

> *For me Serving as a servant leader in this context, while responding to the call for accountability of school performance entails listening to others, being ready to accept criticism and particularly leading by heart.*

This was further in line with what Principal B had noted:

> *Regardless of the context, demand for quality performance I ought to be humble, put the school's interest ahead of my own. I don't do this to be praised nor applauded but to show credibility and integrity. Again, to be credible and do things with integrity I ought to be a good listener, listen to others, listen to myself sometimes and ask if I'm on the right truck.*

It was evident that the school principals are able to internalize the values that they upheld in their servant leadership practice in connection with accountability through active listening honesty and integrity. Furthermore, the first characteristic servant leadership which is listening is the source for leading with integrity and credibility in their day-to-day leadership and accountability.

Discussion

This study attempted to establish relationship between principals' servant leadership and accountability for school performance in challenging contexts. The following questions guided the entire research: How do school principals of faith-based schools in rural contexts balance their servant leadership and accountability for sustained academic performance? And what strategies can be adopted to balance school leadership and accountability in faith-based schools in rural contexts for the improvement of sustained academic performance?

Faith-based School leaders have external accountability demands, such as those legally enacted through the district school boards and the agencies to which the independent schools belong to, and these bureaucratic accountabilities play a large role in contemporary principals'

daily work and academic performance. The main questions that guided the whole study are formulated as

School principals in this study described that they experience multiple struggles and demands imposed on them for improved school performance in their contexts. They indicated that they are accountable to themselves, their school community, the Department of Education, and the umbrella body to which their schools are affiliated. However, the findings under this section indicate that principals of faith-based schools perceive their principalship in faith-based schools as a moral call to serve in integrity, honesty, and selfless love and commitment.

Participants further reported that some of the mechanisms through which they cope with demanding accountability are the time they spend with their family members, retreats, and debriefing sessions.

School principals of faith-based schools reflected on servant leadership practices for improved academic performance in their challenging contexts. Participants shared that leadership of faith-based schools in challenging contexts is demanding and they are required to perform a wide range of leadership tasks that are linked to influencing staff and learner matters whilst acting as serving leaders at the same time. P2 noted, "sometimes I forget that I have a responsibility of my family besides the school" whereas P4 noted that time with family members, debriefing sessions, collaboration, and relationships create mechanisms where he is able to balance his accountability and leadership for improved school performance in the demanding contexts". Through heartfelt commitment to servant leadership principles there has been continuos quality academic performance in their respective schools.

The aspects of teamwork shared by the principles in this study makes an echo to the concept posited by Duignan (2012, p.119) who emphasises that effective leaders should always facilitate and inculcate teamwork and collaborative leadership for the success of their organisations and share responsibility. In addition to that, the participants are in agreement with Chiniara and Bentein (2016) who pointed out that united team members work together to accomplish the set objectives and this coherence trickles down to the support of other groups within the work. This is more relevant to the challenging contexts where leaders work under strenuous situations due to the absenteeism of the teachers and other socio-economic factors.

The perspectives of the participants further resonated with (Wallenius, Juvonent, & Varjo, 2018 & Leitthwood K (2020) who defines trust as a "leader's willingness to be vulnerable to the followers based on the confidence that the followers are honest, open, reliable and competent". Lasater (2016) explains the key considerations in the process of development of trusting relationships in schools as respect for one another, personal regard for others in the school environment, honesty, integrity, and openness.

Conclusion

Establishing relationships, inculcating teamwork, integrity and honesty, inculcating a common vision are some of the mechanisms that have improved the quality of school performances in these contexts and are key actions performed by principals in faith-based schools to deal with demands for accountability. School leaders of faith-based schools believe that the servant leaderships principles approach served as the basis for improving the quality of education and academic performance at faith-based schools. It was further discussed that developing the staff and getting the community involved are crucial aspects of the success of academic achievement at schools. This research suggests that servant leadership may serve as an indication that principals who want to improve the quality of education at schools may emphasize the servant leadership approach.

References

Bailey, C. (2007). *A Guide to Qualitative Field Research* (2nd ed.). Thousand Oaks: Pine Forge Press.

Bracci, E. (2009). Autonomy, responsibility and accountability in the Italian school system. *Critical Perspectives on Accounting, 20*, 293–312.

Brown, S. & Bryant B. (2015). Getting to Know the Elephant: A Call to Advance Servant Leadership through Construct Consensus, Empirical Evidence, and Multilevel Theoretical Development. *Servant Leadership: Theory and Practice, 2*, 1, 10–35.

Burns, R. (2000). *Introduction to Research Methods* (4th ed.). Frenchs Forest: Longman

Cheng, Y. C. (2009). Hong Kong educational reforms in the last decade: Reform syndrome and new developments. *International Journal of Educational Management, 23*(1), 65–86

Chikoko, V., I. Naicker & Mthiyane S. (2015). School Leadership Practices that Work in Areas of Multiple Deprivation in South Africa. *Educational Management Administration & Leadership, 43*, 3, 452–467. DOI: https://doi.org/10.1177/1741143215570186

Chiniara, M. & Bentein, K (2016). Linking Servant Leadership to Individual Performance: Differentiating the Mediating Role of Autonomy, Competence and Relatedness Need Satisfaction. *The Leadership Quarterly* 27, 1: 124–141. DOI: https://doi.org/10.1016/j.leaqua.2015.08.004

Cohen, L., Manion & Morrison K (2018). Research Methods in Education (10th ed.). London: Routledge.

Creswell, J. W. 2014. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. 4th ed. Thousand Oaks, CA: Sage.

Creswell, J. W., Hanson, W. E., Clark Plano, V. L., & Morales, A. (2007). Qualitative Research Designs: Selection and Implementation. *The Counselling Psychologist, 35*, 2: 236–234. DOI: https://doi.org/10.1177/0011000006287390

Creswell, J. W., & Miller, D. L. (2000). Determining validity in qualitative inquiry. *Theory into practice*, *39*(3), 124-130. DOI: https://doi.org/10.1207/s15430421tip3903_2

Department of Basic Education. 2020. Government Bridges Inequality Gap Through No Fee School Policy. Accessed September 20, 2022. https://www.education.gov.za/

Duignan, P. (2012). *Educational Leadership: Together Creating Ethical Learning Environments.* Port Melbourne: Cambridge University Press.

Du Plessis, P. (2017). Challenges for rural school leaders in a developing context: A case study on leadership practices of effective rural principals. *KOERS — Bulletin for Christian Scholarship, 82*(3). DOI: https://doi.org/10.19108/KOERS.82.3.2337

Eva, N., M. Robin, S. Sendjaya, D. van Dierendonck & R.. Liden 2019. Servant Leadership: A Systematic Review and Call for Future Research. *The Leadership Quarterly Journal, 30*, 111–132. DOI: https://doi.org/10.1016/j.leaqua.2018.07.004

Franco, M. & Antunes A (2020). Understanding Servant Leadership Dimensions: Theoretical and Empirical Extensions in the Portuguese Context. *Nankai Business Review International, 11*, 3, 345–369. DOI: https://doi.org/10.1108/NBRI-08-2019-0038

Gonzalez, R. A., & Firestone, A. (2013). Educational tug-of-war: Internal and external accountability of principals in varied contexts. *Journal of Educational Administration, 51*(3), 383–406. DOI: https://doi.org/10.1108/09578231311311528

Grace, G. (2009). Faith School Leadership: A Neglected Sector of In-service Education in the United Kingdom. *Professional Development in Education* 35, 3:485–494. doi: 10.1080/13674580802532662

Greenleaf, R.K. (1977). *Servant Leadership: A Journey into the Nature of Legitimate Power and Greatness*. Place: Paulist Press

Greenleaf, R.K. (1970). *The Servant as Leader*. Atlanta: The Robert K. Greenleaf Center for Servant Leadership.

Halstead, J.M. & McLaughlin, T (2005). Are Faith Schools Divisive? In Gardner, R., J. Cairns & D. Lawton (eds.): *Faith Schools: Consensus or Conflict?* London: Routledge Falmer.

Hallinger, P. (2018). Bringing Context out of the Shadows of Leadership. *Educational Management Administration & Leadership, 46*, 1, 5–24. DOI: https://doi.org/10.1177/1741143216670652

Heystek, J. (2021). Leadership in the Eye of the Beholder: Stakeholder's Perspectives on Principals as Leaders Improving Schools in Challenging Contexts in South Africa. *School Leadership & Management, 42*, 2, 126-150. DOI: https://doi.org/10.1080/13632434.2021.2016684

Harun, G., & Taha, K. (2022). Servant Leadership Characteristics of School Teachers and Its Effect on Student Success and Organizational Health in Selected Public Schools: *Journal of Ethnic and Cultural Studies, Vol. 8,* No. 2 (May 2021), 276-295

Kgatle, M.S. (2018). Servant Leadership: An Urgent Style for the Current Political Leadership in South Africa. *Verbum et Ecclesia, 39*, 1, 1–9.

Kouzes, J., & Posner, B. (2007). The leadership challenge The most trusted source on becoming a better leader. (4th ed.). San Francisco: Jossey-Bass.

Lasater, K. (2016). School Leader Relationships: The Need for Explicit Training on Rapport, Trust, and Communication. *Journal of School Administration Research and Development, 1*, 2 19–26. DOI: https://doi.org/10.32674/jsard.v1i2.1915

Leithwood, K., J. Sun & Pollock, K (2020). *How School Leaders Contribute to Student Success: The Four Paths Framework*. New York: Springer

Ling, Q., Lin, M., & Wu, X. (2016). The Trickle-down Effect of Servant Leadership on Frontline Employee Service Behaviours and Performance: A Multilevel Study of Chinese Hotels. *Tourism Management, 52*, 341–368. DOI: https://doi.org/10.1016/j.tourman.2015.07.008

Maree, K. (2016). *First Steps in Research* (2nd ed.). Pretoria: Van Schaik

Marsh, S. (2016). Improving student learning in schools: Exploring leadership for learning as a community activity. *Leading and Managing, 18*(1), 107-121.

Mbokazi, Z., (2015), *Dimensions of successful leadership in Soweto township secondary schools*, SAGE Publications, Thousand Oaks. DOI: https://doi.org/10.1177/1741143215570304

McDonnell, L. (2013). Educational accountability and policy feedback. *Educational Policy, 27*(2), 170–189. DOI: https://doi.org/10.1177/0895904812465119

McGettrick, B. 2015. "Perceptions in Christian Schools." In *Faith Schools: Consensus or Conflict?* Edited by R. Gardner, J. Carins, and D. Lawton (pp.46–58). London: Routledge Falmer.

McLaughlin, D. (2015). The Dialectic of Australian Catholic Education. *International Journal of Children's Spirituality* 10,2: 215–233. DOI: 10.1080/13644360500154342

Mokala, N. T. & Sefotho, M. M. (2022). Internal teacher support in a special school for learners with hearing impairment in Gauteng. *African Perspectives of Research in Teaching & Learning, 6*(2), 184-197.

Northouse, P. G. (2018). Leadership: Theory and practice. SAGE Publications. OLA Group (Organizational Leadership Assessment Group). (2017). Retrieved, from http://www.olagroup.com

Oakes, A. & Maday, T. (2009). *Engaging Native American learners with rigor and cultural relevance*. Washington, D.D. the Centre for Comprehensive School Reform and Improvement.

Patton, M.Q. (2002). *Qualitative Research and Evaluation Methods* (3rd ed.). Thousand Oaks: Sage.

Republic of South Africa (1996). *South African Schools Act, No 84 of 1996*. Pretoria: Government Printer

Rule, P. & John, V. (2011). *Your Guide to Case Study Research*. Pretoria: Van Schaik.

Sacks, J. (2004). *Leading Schools of a Religious Character: Thoughts on Being a Faith School*. Pre-event reading at the National College for School Leadership, Leading Edge Seminar Leading Schools of Religious Character. Available at: http:www.ncsl.org.uk/media/F7B/9A/randd-relig-charac-pre-2-04.pdf (Accessed on 10 October 2021).

Seashore Louis, K., & Robinson, V. M. (2012). External mandates and instructional leadership: School leaders as mediating agents. *Journal of Educational Administration, 50*(5), 629–665. DOI: https://doi.org/10.1108/09578231211249853

Sikhakhane, Z. (2016). The power of servant leadership. *Sunday Times*, pp.11.

Spears Larry C. and Greenleaf Robert K. Spears Centre. (2019). Retrieved from http://www.spearscenter.org accessed on 19 July 2023

Spencer, L., Ritchie, J., Ormston, R., O'Connor, W., & Barnard, M. (2014). Analysis: Principles and Processes. In Ritchie, J., J. Lewis, C. McNaughton Nicholls & R. Ormston (eds.): *Qualitative Research Practice* (2nd ed.). London: Sage.

Striepe, M., Clarke, S., & O'Donoghue, T. (2014). Spirituality Values and the School's Ethos: Factors Shaping Leadership in a Faith-based School. *Issues in Educational Research, 24*, 1, 85–97. DOI: https://search.informit.org/doi/10.3316/informit.352787861437366

Swart, C., Pottas, L., Mare., D & M. A. Graham (2022). Roll Up Your Sleeves: Servant Leadership as a Paradigm for the Challenging South African School Context? *SAGE Open, 12*(2). DOI: https://doi.org/10.1177/21582440221096653

Taylor, T., Martin, B.N., Hutchinson, S., & Jinks, M (2007). Examination of Leadership Practices of Principals Identified as Servant Leaders. *International Journal of Leaders in Education, 10*, 4, 401–419. DOI: https://doi.org/10.1080/13603120701408262

Taylor, C. (2014). *Modern social imaginaries*. Durham: Duke University Press.

Walker, A., & Ko, J. (2011). Principal leadership in an era of accountability: A perspective from the Hong Kong context. *School Leadership & Management, 31*(4), 369–392. DOI: https://doi.org/10.1080/13632434.2011.606269

Walker, A. (2015). Clones, drones and dragons: Ongoing uncertainties around school leader development. *School Leadership & Management, 35*(3), 300–320. DOI: https://doi.org/10.1080/13632434.2015.1041488

Wallenius, T., Juvonen, S., Hansen, P., & Varjo, J. (2018). Schools, accountability and transparency approaching the nordic school evaluation practices through discursive institutionalism. *Nordic Journal of Studies in Educational Policy, 4*(3), 133–143. DOI: https://doi.org/10.1080/20020317.2018.1537432

Wang, F. (2021). From redistribution to recognition: How school principals perceive social justice. *Journal of Leadership and Policy in Schools, 15*(3), 1–20. DOI: https://doi.org/10.1080/15700763.2015.1044539

Welch, O.M. (2015). Leading for change: Designing a model of transformational leadership through the Carnegie Project on the Education Doctorate. In Fayneese S. Miller (ed.). *Advances in Educational Administration, Volume 16* (pp 23-44). Emerald Group Publishing Limited. DOI: http://dx.doi.org/10.1108/S1479-3660(2012)0000016005

Yin, R.K. (2014). *Case Study Research Design and Methods* (5th ed.). London: Sage.

Yin, R.K. (2018). *Case Study Research and Application: Design and Methods* (6th ed.). Los Angeles: Sage.

Zulu, K.J., Bhengu, T.T. & Mkhize, N.B., (2021), Leadership challenges and responses to complex township school life: perspectives from four secondary schools in South Africa', *International Journal of Leadership in Education* 24(2), 206–225. DOI: https://doi.org/10.1080/13603124.2019.1623918

DAILY LIFE CONTEXT BASED DIDACTIC GAMES IN MATHEMATICS LESSONS TO DEVELOP MATHEMATICAL COMPETENCE

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Abstract. *The results of the national centralised examination of Latvia show a lack of students` mathematical knowledge, skills and competences, which can have a negative impact not only on the direction of education in future, but on students` career choice as well, which makes an impact on the number of specialists in STEM (Science; Technology; Engineering; Mathematics) field professions. Employers highlight that a lack of mathematics skills is one of the major barriers to long-term investments in science, technology, engineering, and mathematics. Consequently, the use of appropriate and varied teaching methods, e.g. integrating real-life problem situations through daily life context based didactic games into the mathematics learning process becomes important. Daily life context based didactic games provide more realistic understanding of everyday situations and examples that lead to more effective and meaningful learning of mathematics. The aim of the research is to investigate and clarify the importance of integrating real-life problem situations through daily life context based didactic games in mathematics learning to improve mathematical competence. Theoretical research methods and empirical research methods (student surveys and teacher interviews), data processing and analysis methods (quantitative, graphical data representation, data analysis) are used in the research. The analysis of the student questionnaire highlights that students do not understand the importance of mathematics in everyday life as well as have difficulties explaining the meaning of mathematical competence. While teacher interviews reveal teachers' opinions about the problems of mathematics in everyday life and the possibility of using mathematics to solve everyday problems.*
Keywords: *daily life context based didactic games, mathematics, student, real-life problem situations, problem-solving skills, mathematical competence*

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Introduction

Integrating real-life problem situations through daily life context based didactic games into learning mathematics has become a topical issue nowadays. There is the a necessity to focus on problem-based situations that occur in the student's life in learning process. This also applies to mathematical concepts as understanding and solving problems is based on the awareness of their relevance in personal life (Cotič, Cotič, Felda, & Krmac, 2021).

A lack of connection between mathematics content and real life is one of the main barriers for learning mathematics. This is a reason why students often lose interest in learning mathematics already in the first grades (Brīvība-Dzenuška, 2018). The need to reduce mathematical anxiety and foster positive attitudes towards mathematics can also be highlighted. Mathematics anxiety and the lack of a positive attitude towards mathematics often become the reasons why students do not choose to study mathematics in depth in secondary school (Levine & Pantoja, 2021). Mathematical anxiety can become topical during the transition from the primary education and lower secondary education. Therefore, teenagers are experiencing mathematical anxiety quite often. Mathematical anxiety can be alleviated by students' confidence in their mathematical abilities, as well as by the realisation that mathematics is not too difficult and complex to be used in real-life situations, but it is personally meaningful for each student and linked with real-life. This is a reason, why it is

important for teachers to develop strategies to reduce mathematical anxiety and its consequences (Levine & Pantoja, 2021).

Mathematical competence is recognised in the European Union as one of the key competences needed for personal fulfilment, active participation in civic, social life and successful careers in the 21st century knowledge society (Eurydice, 2012).

By integrating real-life problem situations through daily life context based didactic games students develop mathematical competence, which is necessary in personal life and professional career. Ojose (2011) emphasises that "mathematical literacy is necessary for both: work and everyday life. It is one of the keys to coping with a changing society" (Ojose, 2011, p. 91).

The current research focuses on acquisition of mathematics in lower secondary phase of education, highlighting the necessity of continuation of the implementation of didactic games in the learning process, particularly in the process of learning mathematics.

There are quantitative research methods used in the research: students` survey and structured interviews of teachers with open-ended questions. The gathered data have been analysed, graphically presented, and compared.

The aim of the research is to investigate and clarify the importance of integrating real-life problem situations through daily life context based didactic games in learning the process of mathematics to improve mathematical competence. The aim highlights "concrete relationships between variables", which is consistent with a quantitative research strategy and a correlational design (Pipere, 2016, 107). Therefore, the questionnaire was designed to obtain quantitative data "that can describe, for example, the performance of individuals" (Pipere, 2016, 112). Semi-structured interview was implemented within the research as well.

The aspects of the learning outcomes in mathematics

The aim of the implementation of the content of basic education is a comprehensively developed and proficient student who is interested in his/her intellectual, social-emotional and physical development; lives a healthy and safe life; learns with pleasure and interest; is a socially responsible citizen, who takes initiative and is a patriot of Latvia (Valsts izglītības satura centrs, 2023). It is important to be able to apply the learning outcomes in a specific context, such as education, work, personal or social life. A unifying aspect in the formulation of learning outcomes in all mathematics subject areas is the application of mathematics in the real life, which includes problem solving (Valsts izglītības satura centrs, 2023).

The learning outcomes in mathematics can be described by their complexity.

Mathematical knowledge and skills involves the ability to consciously perform a given operation on the basis of acquired knowledge (Dukurs & Mencis, 1984); understanding of how to apply mathematical knowledge in the real life, as well as transversal skills and value-based habits (Skola2030, 2020); purposeful and successful performance of mathematical operations using rational techniques (Helmane, 2006), and the ability to determine the values of unknown terms in equations and other skills. Metacognition, which includes knowledge about particular topic and regulation of cognition (Nelson & Narens 1994), becomes important as well.

Complexity of the learning outcomes, on the other hand, can be described by student's ability to apply knowledge, skills, and habits in a coordinated way in new and unusual situations. The learning of complex outcomes is demonstrated in action (Skola2030, 2020).

During the process of planning the content of mathematics, it is important to be aware of the interdisciplinarity between subjects. Teachers need to work closely together and develop a common curriculum. This can be done through teachers` collaboration with colleagues on the use of contexts relevant to other subject areas, so that students do not

subsequently develop misconceptions about what they are learning, which leads to transfering and applying of the aquired skills in mathematics to other contexts. Contexts from real life become a didactical tool in the process of learning mathematics. This gives a meaningful basis to the new mathematical concepts students learn (Cooper & Harries, 2002). Solving everyday problems develops transversal skills, e.g. self-direction and problem-solving. Despite the fact that the meaning of the word "problem" has a negative connotation, this word does not always represent something negative. Problems can refer to different situations, challenges, opportunities that often happen in everyday life, which tend to be positive and exciting, even though they may initially cause uncertainty and mathematical anxiety, which can be described by experiencing feelings of panic and helplessness in the situations when person is asked to do tasks, solve problems or just talk about mathematics (Tobias & Weissbrod, 1980). Thus, individual`s attitude towards the problem is the key to solving it.

Nugraheni & Marsigit (2021) highlight the need to develop realistic mathematics education and improve students' problem-solving skills, bringing the opportunities for students to construct their own understanding, while teacher's role is to guide students by giving direction. Using appropriate teaching materials and approaches, students are given the opportunity to think and solve different types of problems using mathematical knowledge. Students improve their problem-solving skills by thinking independently, analysing, and solving situations, thus, reaching learning goals. Teachers' knowledge, support and motivation are invaluable in helping students to find these solutions, it is important to guide students towards the desired outcome, with teachers' support students analyse contexts from daily life, including problem-situations and by applying mathematical knowledge will be able to find solutions more effectively.

Integrating real-life problem situations through daily life context based didactic games

The use of didactic games in learning mathematics provides solutions to real-life problems. Didactic games always have an educational goal (Hedegiš & Hus, 2020). They can be implemented at different stages of education. Integrating real-life problem situations through daily life context based didactic games can be characterised by the activities involved in solving a specific problem. Ability to apply mathematics in different daily life contexts is very important in mathematics education (Blum, Galbraith, Henn, & Niss, 2007). These games improve communication skills, thinking, creativity, etc., and promote the acquisition of new knowledge and experiences (Burtseva & Graznova, 2019). It is important to link didactic games with students' interests and learning needs. In the process of implementation of didactic games, students are not always aware of the results to be achieved, because the actions they take, and enthusiasm become more important. However, it should also be recognised that in real-life situations the result is not always known, it cannot always be predictable. Didactic games develop students' personality, communication, thinking, creativity, and ability to evaluate different situations and come to solutions. Didactic games develop transversal skills, which contributes to the application of mathematical skills in everyday life and solving everyday problem situations, resulting in the development of competences (Hamblin, 1986). It is important that such games give children the opportunity to be active and to find new solutions (Izglītības un zinātnes ministrija, 2020).

Nowadays games have become topical not only in preschool, but at different stages of life. People play games throughout their lives. Didactic games have cognitive, practical, emotional, motor, motivational, creative, fantasy, social, recreational, diagnostic and therapeutic aspects. Games can be individual, pair, small or larger group activities. There are clearly defined rules in the play. Games can focus on cooperation and/or competition (Vankúš, 2005). Vankúš (2012) emphasises that the regular use of didactic games contributes

to a positive emotional background and stress reduction in the learning process, thus, also reducing mathematical anxiety. Didactic games can be used in pedagogical work with students of different age groups (Ersen & Ergul, 2022). The didactic games are also influenced by the readiness of the students to engage in the game, as well as by the purpose of the particular lesson (Root, 1993).

Methodology

There are quantitative research methods used in the research: students` survey and structured interviews of teachers with open-ended questions. The gathered data have been analysed, graphically presented, and compared. Thus the mixed research has been implemented.

The aim of the research (to investigate and clarify the importance of integrating real-life problem situations through daily life context based didactic games in mathematics learning to improve mathematical competence) highlights "concrete relationships between variables", which is consistent with a quantitative research strategy" (Pipere, 2016, 107). Therefore, the questionnaire was designed to obtain quantitative data "that can describe, for example, the performance of individuals" (Pipere, 2016, 112).

Students who learn in grades 7-9 (N=106) in one school of Kurzeme (district in Latvia) are the target group of the survey. The master sample of the survey is 151 respondents. Thus, 70.1% of the general population participated in the survey. A representative sample can be considered to have been made. The survey was conducted online, but the interviews were face-to-face.

The aim of the survey is to analyse and describe respondents` experience of using daily life context problem situations in the process of learning mathematics at school. The master The survey questions are about:

1) the importance of learning mathematics;
2) respondents' views on the relevance of learning mathematics to their personal life;
3) respondents' self-assessment of their mathematical competence;
4) respondents' views on didactic games and their use.

10-point Likert scale (ranging from 1 (not necessary) to 10 (very necessary)) was used in the survey.

10 teachers of mathematics from 5 different schools in Kurzeme participated in the interview. Their professional work experience is varying from 10 – 25 years.

Semi-structured interview was implemented within the research. This type of the interview was chosen because of the balance between a flexible structure and openness" (Pipere, 2016). The interview selected "participants with expertise on what is happening in an organisation, programme, interest group or in relation to an issue " (Pipere, 2016, 312).

The interview involved 10 primary school mathematics teachers from the 2 schools of the study - 2 schools in Kurzeme (all of them work in the lower secondary phase of education). The interview questions were:

- Do you implement real-life problem situations in mathematics lessons? and if yes, How do you implement real-life problem situations in mathematics lessons?
- Do your students understand the importance of solving real-life problem situations in mathematics lessons?
- Does the use of real-life problem situations in mathematics help your students to learn mathematics?
- How can the use of real-life situations in mathematics learning contribute to the development of students` mathematical competence?
- Do you use daily life context based didactic games in mathematics learning?

- Do daily life context based didactic games help your students to acquire mathematical knowledge, skills and competences more successfully?

Empirical research on the application of daily life context based didactic games in learning mathematics: analysis of teachers` interviews

Interviews with teachers of mathematics reveal a lack of students` understanding of opportunities to link mathematics with real-life contexts. Teachers highlight that more often students` opinion about mathematics is only as about "numbers, equations and theory", not as the opportunity to apply knowledge and skills gained in mathematics lessons in the real life. Teachers emphasize that in general students do not think about the connections between real life and mathematics on a daily basis: they are just doing the tasks and "thinking about upcoming test". Teachers also recognise that students` understanding of application of knowledge gained in the lessons of mathematics and particularly in solving the real-life problem situations in the context of mathematics depends on the values of education, the importance of mathematics in the family and students` self-directed learning skills. Another important aspect highlighted by teachers is that students not always see the connections between real life and mathematics, as a significant number of everyday problems, which would require mathematical knowledge and skills nowadays, quite often are solved by smart devices and artificial intelligence.

Respondents admit that the most common situations where students need to apply their mathematical knowledge and skills are everyday situations in which money is involved.

However, teachers also say that their students have interest in real-life situations where they can apply mathematical knowledge and skills.

9 out of 10 teachers say that applying daily life context, including problem-solving, based didactic games in the lessons of mathematics helps students learn more effectively, which gives them the opportunity to understand how to apply mathematics in real life. Respondents admit that it is easier for students to learn if they see the connection between mathematics and their real-life experiences. They also stress that daily life context, including problem-solving, based didactic games in mathematics should be offered to students on a regular basis from pre-primary school onwards, so that students develop critical thinking and are able to act in different situations, recognizing connections that help them to fully evaluate and resolve the situation. Teachers stress that considerable effort is needed to teach students to think, do reasoning, analyse, ask questions. The teachers also highlight that solving real-life problem situations in mathematics promotes logical thinking and motivates students to learn. Teachers emphasise that they often apply real-life problem solving to text tasks and tasks on interest to solve problems about prices, various everyday bills, cooking activities, travelling, repairing, tasks about speed, time, distance, which are everyday mathematical contexts, as well as to geometry, to calculations of areas and volumes of shapes.

The interviewed teachers also believe that it is very important to use mathematical knowledge outside the classroom in real life. However, teachers say that they rarely implement didactic games in lessons of mathematics.

Empirical research on the application of daily life context based didactic games in learning mathematics: survey analysis

The questionnaire was sent to 134 students, however, 106 respondents completed a survey. Thus, convenience sampling can be considered to have been implemented.

79.2% of the respondents said that it is important for them to acquire mathematical knowledge because they think mathematics will be useful for their future success in life and

for their future career choice. On the other hand, 20.8% of the respondents answered that it is not important for them to learn mathematics because they have negative attitude towards mathematics and they have poor results in in this subject as well.

When rating the need to study mathematics on a scale from 1 (mathematics is not important in solving real-life problems) to 10 (mathematics is very important in solving real-life problems). About 27% of the respondents consider mathematics to be only partly related to real life and only 13.3 % of respondents have rated the importance of mathematics from 8-10 (see Figure 1). Thus, the results of the survey highlight the lack of students` understanding of applying the knowledge and skills acquired in mathematics to the real life.

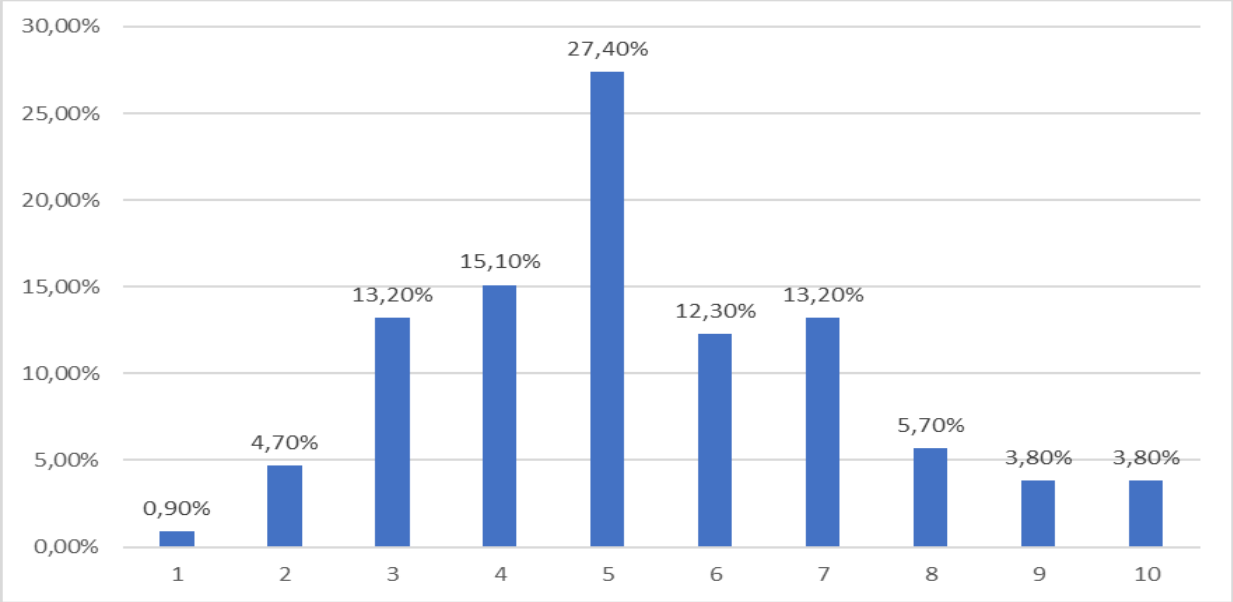

Figure 1 ***Students` understanding of applying the knowledge and skills acquired in mathematics to the real life***

When asked about the impact of mathematics in solving real-life problems, 31.1% of the respondents admit that mathematics helps them in solving real-life problems, stressing that they solve such situations regularly and the lessons of mathematics are important for it. 68.9% of the respondents highlight that knowledge and skills gained in the lessons of mathematics could be useful in solving such situations in future. When referring to specific real-life problems, respondents mentioned "calculating wall and floor space", "quantities of products needed for cooking", "prices and discounts in shops", etc. There are also answers in which students mention calculations involving money, calculating interest and calculating time.

When asked about the use of games in the learning process, 13.2% of the respondents answered that they are involved in playing specific games in mathematics lessons, while 86.8% answered that they do not play games in mathematics lessons. The most frequent games mentioned by respondents in mathematics lessons are implemented using *Kahoot* or *Quizziz* apps.

Conclusions

Mathematical competence becomes important for both work and everyday life as it is one of the key competences for a life in a changing society. A lack of connection between mathematics content and real life as well as mathematical anxiety, which become topical

during the transition from the primary education and lower secondary education; the lack of a positive attitude towards mathematics become the reasons why students quite often lose their interest in studying mathematics. Therefore, the necessity to focus on problem-based situations in the learning process of mathematics has been highlighted by scholars and the contexts from daily life and real-life problem situations, as well as strategies to reduce mathematical anxiety and its consequences become a topical issue nowadays.

The learning outcomes in mathematics can be described by their complexity: mathematical knowledge and skills, understanding of how to apply mathematical knowledge in real life and ability to apply them in unknown real-life situations.

Nowadays games have become topical not only in preschool, but at different stages of life, because the development of digital technologies encourage people to play games throughout their lives. Didactic games can be used in pedagogical work with students of different age groups. Students are not always aware of the results to be achieved in the process of implementation of didactic games. The reason for this is the bigger emphasis put on enthusiasm and positive emotions during the game. It must be admitted that in real-life situations the result is also not always known and cannot always be predictable.

Didactic games develop students' personality, communication, thinking, creativity, transversal skills and ability to evaluate different situations and come to solutions. They give students the opportunity to be active and to find new solutions.

However, the readiness of the students to engage in the game becomes important.

Empirical research highlights that students do not always understand the opportunities to use mathematics in real-life situations. Students also have difficulties in relating mathematics to real-life situations. This creates a gap between theoretical and practical mathematical understanding of everyday situations. The use of modern didactic games and the implementation of real-life tasks in mathematics lessons, e.g. solving problems related to everyday life situations, is becoming an issue.

References

Blum, W., Galbraith, P. L., Henn, HW., & Niss, M. (eds) (2007). Modelling and applications in mathematics education: the 14th ICMI study. *New ICMI Study Series, Volume 10*, 337-340. DOI: https://doi.org/10.1007/978-0-387-29822-1_59

Brīvība-Dzenuška, L. (2018). *Pieaugušo uzdevums – veicināt bērnu interesi par matemātiku.* Retrieved from https://www.delfi.lv/bizness/versijas/laura-briviba-dzenuska-pieauguso-uzdevums-veicinat-bernu-interesi-par-matematiku.d?id=50517075

Burceva, R., & Graznova, G. (2019). *Spēļu izmantojums literāro darbu ētisko vērtību apguvē sākumskolā.* Retrieved from: https://journals.rta.lv/index.php/ER/article/view/4368/4372

Cooper, B., & Harries, T. (2002). Children's use of realistic considerations in problem solving: some English evidence. *The Journal of Mathematical Behavior*, *Volume 22*, Issue 4, 449-463. DOI: https://doi.org/10.1016/j.jmathb.2003.09.004

Cotič, N., Cotič, M., Felda, D., & Krmac, N. (2021). The effect of cross-curricular integration on pupils' knowledge gained through experiential learning, *Cypriot Journal of Educational Sciences*, *Vol. 16*, No. 6, 3133-3146. Retrieved from https://files.eric.ed.gov/fulltext/EJ1321531.pdf

Ersen, Z., B. & Ergul, E. (2022). Trends of game-based learning in mathematics education: A systematic review. *International Journal of Contemporary Educational Research*, *9*(3), 603 - 623. DOI: https://doi.org/10.33200/ijcer.1109501

European Commission. (2007). *Key competences for lifelong learning*. Luxembourg: Office for Official Publications of the European Communities.

Dukurs, K., & Mencis, J. (1965). *Aritmētikas metodika.* Rīga: Liesma.

Eurydice. (2011). *Mathematics Education in Europe: Common Challenges and National Policies* (pp. 157.-191.), England, Education, Audiovisual and Culture Executive Agency. Retrieved from https://ncm.gu.se/media/ncm/dokument/EN_Math_highlights.pdf

Eurydice. (2012). *Matemātikas izglītība Eiropā: kopīgie izaicinājumi un valstu rīcībpolitika*, Retrieved from https://publications.europa.eu/resource/cellar/3532f22d-eea2-4bb2-941b-959ddec61810.0008.02/DOC_1

Hegediš, P. J., & Hus. V. (2020). *Global Perspectives on Gameful and Playful Teaching and Learning*, Retrieved from https://www.igi-global.com/dictionary/didactic-game/80203

Helmane, I. (2006). *Skolēnu matemātisko prasmju apguves un emociju mijsakarība*. Rīga: Latvijas Universitāte.

Izglītības un zinātnes ministrija. (2020). *Pētījums priekšnosacījumi sekmīgai pārejai no pirmsskolas izglītības uz sākumskolas izglītību, tostarp iekļaujošās izglītības principa īstenošanai*, Retrieved from https://www.izm.gov.lv/lv/media/11465/download

Levine, S., C., & Pantoja, N. (2021). Development of children's math attitudes: Gender differences, key socializers, and intervention approaches. *Developmental Review, 62*, Article 100997. DOI: https://www.izm.gov.lv/lv/media/11465/download

Nelson, T., O., & Narens, L. (1994). Why investigate metacognition? In J. Metcalfe &A. P. Shimamura (Eds.), *Metacognition: Knowing about knowing* (pp. 1–25). Cambridge, MA: The MIT Press.

Nugraheni, P., L., & Marsigit M. (2021). Realistic mathematics education: An approach to improve problem solving ability in primary school, *Journal of Education and Learning*, *Vol. 15*, No. 4, 511 - 518, DOI: https://doi.org/10.11591/edulearn.v15i4.19354

OECD. (2019). *Skills Strategy Latvia.* Retrieved from https://www.oecd.org/skills/centre-for-skills/OECDSkillsStrategyLatviaReportSummaryEnglish.pdf

Ojose, B. (2011). Mathematics Literacy: Are We Able To Put The Mathematics We Learn Into Everyday Use?. *Journal of Mathematics Education*, *Vol. 4*, No. 1, 89-100, Retrieved from https://educationforatoz.com/images/8.Bobby_Ojose_--_Mathematics_Literacy_Are_We_Able_To_Put_The_Mathematics_We_Learn_Into_Everyday_Use.pdf

Pipere, A. (2016). Primāro datu ieguves metodes. No: K. Mārtinsone, A. Pipere (red). *Ievads pētniecībā: stratēģijas, dizaini, metodes*. (212.-277.lpp.). Rīga: RaKa.

Skola2030. (2020). *Matemātika II, Padziļinātā kursa programmas paraugs vispārējai vidējai izglītībai*, Retrieved from https://mape.skola2030.lv/resources/9482

Skola2030. (2020). *Matemātika 1.-9. klasei, Mācību priekšmeta programmas paraugs*, Retrieved from https://mape.skola2030.lv/resources/159

Tobias, S., & Weissbrod, C. (1980). Tobias, S., & Weissbrod, C. Anxiety and mathematics: An update. *Harvard Educational Review*, *50*(1), 63–70. DOI: https://psycnet.apa.org/doi/10.17763/haer.50.1.xw483257j6035084

Valsts izglītības satura centrs. (2023). Matemātika 1.-9. klasei, Mācību priekšmeta programmas paraugs, Retrieved from https://mape.gov.lv/catalog/materials/AAAB8194-FF4F-4A89-835F-2DCBC1611D24/view?preview=AAAB8194-FF4F-4A89-835F-2DCBC1611D24

Vankúš, P. (2005). Efficacy of teaching mathematics with method of didactical games in a–didactic situation. *Quaderni di Ricerca in Didattica*, 90-105 DOI: 10.13140/2.1.4908.3841

Vankúš, P. (2012). *Didatic games in mathematics.* KEC FMFI UK: Bratislava

THE DIVERSITY AND MULTIFUNCTIONALITY OF LIFELONG GUIDANCE SERVICES IN THE DISTANCE EDUCATION SECONDARY SCHOOL AS AN OPEN EDUCATION ENVIRONMENT

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Abstract. *Lifelong guidance is a multidisciplinary and interdisciplinary process, where different types of organisations, institutions in general and individually, have their own roles to play in the overarching lifelong guidance system. From this perspective, the advantages and contribution of distance education secondary schools in development of lifelong guidance system have so far been underinvestigated and underappreciated. The aim of the study: based on theoretical research and personal experience, to substantiate diversity and multifunctionality of lifelong guidance services in the open education environment of a modern distance education secondary school to form theoretical basis for developing assessment methodology. Research methods: 1) theoretical research methods: studying, analysing and evaluating scientific literature and various types of documents; 2) empirical research methods: reflection on own experience. The research findings allow for a main conclusion to be made that thanks to the principles of openness, overcoming distance and flexibility, lifelong guidance e-services in modern distance education secondary school are accessible to everyone, anywhere and anytime. Modern distance education secondary schools have large target-audience. These schools offer opportunities of education in alternative way. Thanks to offered formal and non-formal distance education (incl. second chance formal education, recurrent formal education), cooperation network of social partners (incl. school graduates with their career development success stories (narratives)), e-counselling etc., learners are able to self-develop and self-direct their careers according to their life goals and career intentions, combining distance learning with job and others important activities in their lives. The important place and role of distance education secondary schools within the lifelong guidance system is also evidenced by the teachers' continuous professional development, incl. professional training courses, offered in a distance education environment. The modern distance education secondary school as an open environment occupies an important place in the Latvian lifelong guidance system.*
Keywords: *distance education, diversity and multifunctionality, lifelong guidance, open school.*

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Introduction

Nowadays traditional career guidance conception transforms and new lifelong guidance paradigm forms and develops highlighting education, professional training, labour market reforms and a key-components of national lifelong and lifewide learning, and employment strategies as important components of lifelong guidance system. Lifelong guidance is a new paradigm in theory and practice as well. The aim of lifelong guidance is to provide career support to people of all ages at all stages of their career development in a lifelong and continuous process. Moreover, career support is necessary on a continuous basis: not only in moments of crisis, but also in moments of career success. Various global documents have highlighted the need to strengthen policy, national lifelong guidance systems that support main functions of lifelong guidance at all levels of education, professional training and employment support. In a lifelong guidance system, several parties work in balance, each with their own tasks, goals and benefits in delivering a wide range of services. Lifelong guidance is therefore a multifunctional system of cooperation between several institutions and individuals

(CEDEFOP, 2005; CEDEFOP, 2008; Jackson, 2014; Katane & Katans, 2023; Sultana & Watts, 2005).

The concepts and strategies of lifelong guidance (career lifelong guidance – authors' comment) are especially relevant in the European Union countries nowadays because the main goal of lifelong guidance is to promote the sustainable development of society. This is evidenced by several publications of recent years (Barnes, Bimrose, & Brown, 2020; Dekeister & Lapie, 2023; European Commission, 2023a; Kalēja & Katane, 2022; Katane & Katans, 2023; Lifelong Guidance in Finland, 2012; Puulmann & Rammo**,** 2021; Rammo & Larini, 2023; Sloka, 2022; Toni & Vuorinen, 2020).

The research findings allow for a conclusion to be made that the provision of lifelong education plays a central role in lifelong guidance. Thus, the provision of lifelong education and lifewide education is one of the main goals of lifelong guidance. In this point of view, providers of formal and nonformal education at all levels are considered as components of the lifelong guidance system (Barnes et al., 2020; Jackson, 2014; Makārtijs, 2015). Thus, lifelong learning as a value is one of the main priorities not only in education (Balceraite, Lubkina, & Usca, 2021), but also in comprehensive lifelong guidance system nowadays (Doyle, 2023; Katane & Katans, 2023). In the context of lifelong learning, lifelong guidance refers to a range of activities that enables citizens of any age and at any point in their lives to identify their capacities, competences and interests, to make educational, training and occupational decisions and manage their individual life paths in learning, work and other settings in which these capacities and competences are learned and/or used (Council of the European Union, 2004; Lifelong Guidance in Finland, 2012; Toni & Vuorinen, 2020). The important priorities in the implementation of lifelong guidance are the following: expanding access to learning, supporting social inclusion, labour market liberalization and promoting sustainable development of modern society (Daija**,** Krastina, & Rutkovska, 2018). Several research testify that positive trend has been identified: improved lifelong guidance provision at schools, including general and vocational education secondary schools. Schools, including distance education schools, offer career support services not only for leaners, but also for educators (CEDEFOP, 2005; CEDEFOP, 2008; Sloka, 2022; Soika, 2015; Soika & Vronska, 2023; Sultana, 2006; Vāvers & Katane, 2021). The experience of the authors shows, that nowadays distance education secondary school is an important part of a lifelong guidance system.

Distance education schools not only offer formal and informal education opportunities for their learners, but also offer career support services, significantly expanding their functions within lifelong guidance framework. In turn, distance learning is a way and means of dealing with problems caused by crises different kinds. For example, distance learning has become particularly relevant in school, university and even pre-school settings in the context of the global Covid-19 pandemic (Adam & Metjalk, 2022; Hillman & Ward, 2023; Rice, 2020; Telg, 2021; Van Allen & Katz, 2020; Yorkovsky & Levenberg, 2022). The experience of the authors testifies, that distance education secondary school environment has own specificity. This specificity should be respected by both the school administration, students and their parents, and the entire society in general, especially valuing the work of distance education teachers in maintaining and further developing the open distance education environment (Segbenya, Minadzi, Bervell, & Somuah, 2024).

In the current post-pandemic situation and under global level continuing changeable conditions, another aspect of the relevance of distance learning in the context of different geopolitical types of crises is being addressed, namely the provision of access to education, offer various career support and counselling, where refugees and migrants must be provided with education within framework comprehensive lifelong guidance in countries of asylum or new home countries in this way promoting their integration in society and ensuring their employment (European Commission, 2023b).

Supporting and promoting the sustainable development of distance education secondary schools, it is important that the specific features and contribution of the modern distance education secondary school as an open and multifunctional educational environment is recognised and properly valued in the framework of lifelong guidance system.

The aim of the study: based on theoretical research and personal experience, to substantiate diversity and multifunctionality of lifelong guidance services in the open education environment of a modern distance education secondary school to form theoretical basis for developing assessment methodology.

Research methods: 1) theoretical research methods: studying, analysing and evaluating scientific literature and various types of documents; 2) empirical research methods: reflection on own experience.

Methodology

The theoretical investigations were carried out with the aim was not only to substantiate diversity and multifunctionality of lifelong guidance services in the open educational environment of a modern distance education secondary school based on theoretical research and personal experience, but also to develop methodological basis for evaluation of this diversity and multifunctionality of the lifelong guidance.

The research results were analysed, summarized, and grouped (structured) according to the three basic principles of open distance education. Authors formulated criteria for analysing and evaluating theoretical research results accordance with these principles (Table 1).

Table 1 ***Principles and Criteria for Evaluation of Diversity and Multifunctionality of Lifelong Guidance Services in Open Distance Education Secondary School*** *(Created by the authors)*

№	**Principles**	**Criteria**
1.	Principle of Openness	▪ Diversity of target-groups (ensuring open inclusive environment for various learners' groups who learn at any stage of life, including teachers who are: educators and at same time learners as well). ▪ Diversity of education offer (formal and non-formal distance learning for learners, including the *second chance education* and *recurrent education*; continuous professional development: knowledge management, exchange of experience, professional training courses for educators etc.).
2.	Principle of Overcoming Distance	▪ ICT based education (using new modern ICT and according to them teaching methodology). ▪ Promotion and support self-directed/self-managed distance learning. ▪ The offer of career e-counselling services.
3.	Principle of Flexibility	▪ Differentiation, ▪ individualisation, ▪ personalisation in distance educational process, which allows learners to learn in a suitable way and to combine studies with work or with another type of occupation.

Thanks to these principles and criteria, and obtained theoretical research results as well, in their further studies authors developed a methodology for evaluating diversity and multifunctionality of lifelong guidance services in an open distance education secondary school. This methodology in full amount has not yet been published.

The Offer of Lifelong Guidance Services in a Distance Education Secondary School as an Open Education Environment According to Three Basic Principles: Theoretical Research Results and Discussion

In order to shed light on and understand the specifics of lifelong guidance services in a distance education secondary school, it is important to justify the concept of a distance education secondary school as an open education environment.

Research results shows that in the late 20th and early 21st centuries, the concepts of open education and distance education, as well as the explanation and validation of open school and distance education school, are interlinked (Clinton-Lisell, 2021; Katane**,** Katans, & Vāvers, 2021).

Under the influence of the concept of open education, the concept of open school has emerged and is continuously evolving, where the access to school education at any age throughout a person's life plays important role as an important condition for lifelong guidance. An open school environment encourages, motivates, promotes, supports, and builds confidence and belief in oneself, one's potential for self-fulfilment and one's ability to enter the education process in a way and at a time that suits oneself, thus supporting the implementation of life goals and career intentions. The characteristics of open schools allow for the conclusion that open schools with their activities explicitly provide lifelong guidance to their learners.

One of the open school's roles is to help people integrate into society by promoting their participation and employability in the labour market, where education becomes a tool for career development and the education process itself an integral part of learners' career development. An individual's knowledge, skills, attitudes, competencies, experiences, and other individual qualities that help their job search and integration into labour market, and to be a dependable source of efficiency, innovation, and productivity for an employer are analysed as the employability of an individual, which is defined as a set of personal qualities, skills or abilities (Troshkova, & Katane, 2023)

Especially in the last 10 years of the 21st century, the term *open education* has been used in scientific publications to refer to distance learning, which has given rise to the new concept of Open Distance Learning (ODL) (Ambeth & Saravanakumar, 2020; Bozkurt, 2019; ICODE, 2022; Lewis-Perinbam & Daniel, 2005; Patru & Khvilon, 2002; Roffey, 2006; Saidi, Sharip, Rahim, Zulkifli, & Zain, 2019), describing the modern stage of the historical development of distance learning. This indicates that the emergence of the new concepts of open distance learning (ODL) and open distance learning environment (ODEE) is determined by the development of educational philosophical thought, as they most accurately describe the specifics of the modern distance learning environment, which is open to both: 1) the general public as distance education target-audience and 2) introduction of new information and communication technologies (ICT) in the distance learning process. Investigations also testify that the new concepts have already entered the lexicon of academic community and scientific terminology around the world, opening new opportunities for research into the specific features of open distance education environment in order to gain a broader picture of distance learning, highlighting ICT-based learning experiences.

The main principles of the open school are the following: openness, overcoming distance and flexibility by using the latest ICT in learning. Thanks to these three basic principles, many authors equate the notions of open school and distance education school, considering them synonymous (Abrioux, 2009; Haughey & Stewart, 2009). Theoretical research shows that a number of Latvian researches of distance education (Katane, Kristovska, & Katans, 2013; Katane, Kristovska, & Katans, 2015; Ozoliņa, Slaidiņš, Slaidiņš, & Žuga, 2003; Vāvers, 2022) also list and describe the above mentioned basic principles of

open education school as the basic principles of distance education, which supports the idea of the concept: 1) open education and distance education; 2) the close relationship between open school and distance education school. Therefore, the principles of openness, overcoming distance and flexibility are the common basic principles of open education and distance education. This leads to the further conclusion that all these principles are the core principles of open distance learning (Katane et al., 2021). This in turn proves the relevance and scientific validity of the concept of open distance education environment and open distance education school.

As the distance education secondary school environment is open to all and anyone, anywhere (with an internet connection) and at any time, it can be called an open education environment of a distance education secondary school.

Based on both theoretical research and the authors' reflexion of personal experience, authors worked out a substantiation of the basic principles of open education environment of a distance education secondary school, highlighting in more detail the ways in which these principles are manifested in lifelong guidance.

Research shows (Katane et al., 2021; Tlili, Burgos, Huang, Mishra, Sharma, & Bozkurt, 2021) that the modern distance education secondary school is an open education environment with its own specific characteristics. Experience has shown that distance education secondary schools have significantly expanded their functions beyond the traditional school.

Nowadays modern distance education secondary schools have broadened their target groups, becoming open, inclusive, and multifunctional learning environments. Thus, thanks to the specific features of their activity, they have become an essential part of a lifelong guidance system.

The lifelong guidance offered by modern distance education secondary school has several manifestations and functions. The authors offer an insight into the most typical manifestations and functions basing on the principle of openness, the principle of overcoming distance and the principle of flexibility.

1. The Offer of Lifelong Guidance Services According to the Principle of Openness

Experience shows that modern distance education secondary schools are attended by teenagers, young people, and adults.

As distance education secondary schools are attended not only by school-age teenagers and young people, but also by adults aiming to complete compulsory national primary and/or general secondary education, it is fair to say that in terms of lifelong learning, is not simply state-recognised formal education, which is very important for everyone's career development.

● ***Second Chance Formal Education.*** Formal education is offered, which also has a compensatory function in adult education. In educational theories and concepts, this formal education is called *second chance education*.

The globally accepted concept of *second chance education* provides that second chance education opens new learning opportunities not only for adults, but also for school-age young people who have been unsuccessful in traditional face-to-face schools. The open education environment of a distance education secondary school therefore gives this second chance to try again to successfully complete a primary or general secondary education programme and graduate with a state-recognised diploma. Second chance distance education is also often chosen by children and young people who have been affected by health, behavioural and/or social exclusion problems while attending a face-to-face school. These students (learners) include individuals with special needs, many of whom have medically diagnosed disabilities (CEDEFOP, 2023).

Second chance education provision needs to take into account the fact that the target audience for such programmes is people who have prematurely stopped studying in a traditional face-to-face school. Given the negative learning experiences of this target group, it is important to stress that many of the second chance learners are psychologically vulnerable to change in their lives, having lost faith in their own abilities and also in the existing opportunities because of the difficulties and failures they have overcome in the past. At the same time, they are aware of the need to acquire a necessary formal school education, while at the same time building a bridge to further education and thinking about possible changes in their careers. Research shows that the majority of second chance learners, however, are already highly motivated, learning in a meaningful way, because they have returned to education, continuing to learn, changing the form and environment of their education, and realising the importance and role of their education in their lives - in their lifelong careers (Bloomer & Hodkinson, 2000; Lamb, Walstab, Teese, Vickers, & Rumberger, 2004; Ross & Gray, 2005). To succeed in second chance education, a balance needs to be struck between acquiring education and a range of other activities in social life as well as in professional or employment activities that are also relevant to adult learners. Education should be on the same level of priority as other activities within a career.

It is very important to offer an educational environment in a distance education secondary school where *pedagogical, psychological, and technical support* can be found in the form of study guides or instructions, psychological, motivational and encouraging learning, allowing learners to get rid of previous inferiority complexes, forget previous failures and allow them to accumulate new, positive learning experiences. Several second chance education providers abroad, such as in Australia, offer specially trained *educational mentors* to help and support learners with various types of problems, so that they do not stop learning again. In this process, it is very important to ensure a collegial approach as well as to build friendly, supportive relationships with learners (Savelsberg, Pignata, & Weckert, 2017).

● ***Recurrent Formal Education.*** Distance education in the open education environment of secondary schools offers students (potential learners) not only a second chance education, but also a ***recurrent education.***

As the concept of lifelong education has developed, the concept of second chance education has been separated from the concept of lifelong education and is now successfully developing within the concept of recurrent education (Bengtsson, 1989). The interpretations of recurrent education and second chance education have both similarities and differences. The difference is that the stage of second chance education follows early termination of studies, when the full stage of education has not been completed and the content of the education programme has not been covered in full. In turn, recurrent education is when all the previous stages of education have been completed, the full cycle of each stage has been completed and the content of the education programme has been fully covered. The main idea of the *recurrent education* concept is that not all people can learn continuously throughout their lives. The learning process is periodic, resuming after a period of time when there is a need to acquire new knowledge, a new level of education or professional development. The concept of recurrent education thus developed as an alternative to the concept of further education and the concept of continuous education. Unlike the second chance education concept, the recurrent education concept has been successful in the intermittent phases of the education process and has always resulted in acquiring a document certifying the education.

● ***Non-formal Distance Education.*** In the open education environment of a distance education secondary school, distance learning makes it possible to provide not only the content of formal education (including second chance education, recurrent education, inclusive education) to any individual in society, regardless of age, health, or previous learning experience, but also ***the content of non-formal education*** at any time and in any

place with an internet connection. Non-formal education is a complement to formal education, but it can also be an alternative to formal education, to provide learners with content that is relevant and accessible to their interests and needs, and to help them develop the competences they need for their careers. There is no formal assessment in the process of non-formal distance learning. The educational process itself, as well as the resulting knowledge, skills, competences, and new experiences of the learners, is mostly assessed on the basis of the learners' evaluation and self-assessment. Non-formal education has greater flexibility, as it can respond more quickly to demand by offering a wide variety of non-formal education topics according to learners' interests and needs. The knowledge, skills and competences acquired in non-formal education can also be useful in professional activity. Non-formal education has many different functions: 1) up-bringing function; 2) informative and educational function; 3) developmental, cognitive and active learning function; 4) supportive function; 5) socialization and culturalization functions; 6) preventive function; 7) professional self-determination and professional development function; 8) compensatory function; 9) recreational function (opportunities for rest and relaxation) (Katans, Jurgena, Katane, & Svareniece, 2015; Smith & Flores, 2005). The non-formal education offered at the distance education secondary school has both distance learning and non-formal education features, so it can be said to be ***non-formal distance learning***. Non-formal distance education, like formal distance education, uses different types of ICT, different digital solutions and tools, different types of media (internet, television) to enable all types of e-learning: i-learning (internet learning), m-learning (mobile learning via smartphones), t-learning via different types of telecommunications, social media, etc. (Colin, 2018). Open access learning resources are widely offered and used in non-formal distance learning (Romi, 2000). Experience shows that non-formal distance learning offers a wide range of different types of online courses, video materials, video presentations, e-books, online interest clubs such as e-sports training and competitions, learning games where the learner actually learns content of some curriculum (a subject/topic) by playing video games, etc.

For distance learning (both formal and informal distance learning) to be successful, learners' ICT competences, good learning technology not only at school but also at home, and self-directed and self-managed learning competences necessary for independent learning in a self-determined learning process are important prerequisites. Distance learning is always self-directed learning, as learners learn most of the content independently, but this is possible if learners are motivated to learn, able to plan their time and learning, manage and control their learning, and self-assess their learning results (Askin-Tekkol & Demirel, 2018). To promote self-directed and self-managed learning, distance education secondary schools provide pedagogical support, including methodological, such as self-assessment questions and answers, and psychological self-assessment tests. Psychological support is also offered through individual counselling support. A multifaceted support provided by schools contributes to the development of learners' self-management competences and helps them to accumulate positive independent learning experiences. In turn, self-management competence is an important component of career self-management competence (Katane & Korna-Opincāne, 2020). Based on experience, it can be said that the development of career self-management competences is the result of a methodically correctly managed and guided distance learning process, which is one of the most important tasks of lifelong guidance.

It can therefore be concluded that in an open distance education environment, learners have the opportunity to pursue both formal and non-formal education throughout their lives, successfully self-managing their careers.

● ***The offer of Educators Continuous Professional Development in Modern Distance Education Secondary School as Learning/Knowledge Organisation.*** Today, not only the learners, but also the educators learn in the open education environment of a distance

education secondary school. The authors' experience shows that many *distance education secondary schools* are becoming learning organisations (knowledge organisations), promoting ***continuous professional development*** of their teachers, including developing and offering ***professional training programmes***. It is a form of continuous learning and exchange of experience, where, thanks to information and communication technologies (ICT), knowledge stored in the school environment is transferred, re-created, and reproduced in any form, giving each teacher the opportunity to share their experience and acquire knowledge, skills and competences that can be useful for their professional development and pedagogical practice.

Theoretical research (Kennedy, 2016; Kyndt, Gijbels, Grosemans, & Donche, 2016; Opfer & Pedder, 2011) has generally concluded that professional development for teachers encompasses a wide range of activities, including structured, especially organised courses, collaborative learning in the workplace, reflection and sharing of experience, including unscripted non-formal discussions with colleagues (teachers), supervision, pedagogical observations and their analysis and evaluation; pedagogical-methodological, psychological literature reading clubs are working at schools (studying and discussing the latest professional literature), etc. According to the knowledge organisation conception (Katans, 2019), in this way distance education secondary schools become learning organizations in which everyone learns: both students and educators as well. Professional development courses for teachers, the main aim of which is to introduce a common approach and methodology in the educational process, are often called 'workshops', where teachers are assigned student roles, participating in structured activities such as lectures and discussions, using role-plays and a simulation approach. Professional development thus includes any type of activity aimed at and resulting in the development of teachers' professionalism (including different types of competences).

The Covid-19 pandemic highlighted the IT incompetence of several teachers to use the latest information and communication technologies. There was also methodological incompetence in organising distance learning. There was a real need to support teachers' professional development in distance learning methodologies (Raimers, Schleicher, Saavedra, & Tuominen, 2020).

As information and communication technologies are continuously developing and changing, distance education secondary schools as open education environments are continuously developing and changing as well. ***Distance education methodology*** is increasingly improving. The professional development of educators in distance education methodology includes distance education planning, distance education curriculum development, digital learning resources development, various information and communication technologies and ICT based teaching methods (online internet platforms, e-learning platforms, software, applications, various digital tools, digital learning resources development methods etc.). It is important to know that there are differences between distance learning and e-learning, as e-learning can be part of face-to-face learning, including students' (learners') ICT based independent study. Teachers working in distance education need methodological support, ensuring a wide range of freely available distance education methodological literature and organising professional training courses. Much remains to be done in this field, despite the fact that Latvia has accumulated positive experience in the production of distance education methodological literature from the end of the 20th century to the present day (Deķe, Ivanova, & Kristovska, 2000; Kazuša, Laiveniece, Rozenfelde, Slaidiņš, & Štāle, 2011; Ivanova, Kristovska, & Slaidiņš, 1999; Slaidiņš, 2003; Slaidiņš, 2005).

In the aspect of methodology of distance education school managing it is important to point that managers of distance education need to undertake a job analysis so as to define the job description and job specification for online facilitation and their associated remunerations. This would enable course tutors to assess and determine if they would not be worse off in

terms of remuneration on online facilitation. On work relations, managers would need to provide social platforms where course tutors could collaborate and interact with their co-course tutors to share knowledge and experiences (Segbenya et al., 2024)

With the modernisation of access to lifelong guidance, a strong emphasis is being placed on the importance of using information and communication technologies (ICT) in the provision of lifelong guidance, including lifelong and lifewide education (Douce, 2022; Jaunzeme, 2013; Leon & Castro, 2014). Education is also undergoing significant changes, thanks to the fact that ICT have entered all areas of human activity and have become an integral part of people's lives and activities. Modern information and communication technologies become tools for both access to education process and distance learning open educational content (Hornidge, 2011; Swanson, 2020; Wu & Contreras, 2020). ***Modern information and communication technologies open new perspectives for lifelong guidance, including for supporting lifelong learning and access to education in open education environment.***

2. The Offer of Lifelong Guidance Services According to the Principle of Overcoming Distance

There are three dimensions of *open distance education*: time, space, and process. Open distance education is closely linked to the *Information Society* paradigm, which is based on the idea that, in nowadays society, the main people's tools are information and communication technologies (ICT). ***Thanks to ICT, it is possible to cover long distances in education, save time, it is possible to learn at any time and in any place where there is an Internet connection.*** In the context of open distance learning, many scientists/researchers talk about the phenomenon of time and distance compression. From the point of view of the *Open School*, the importance of the educational process itself is growing, for example, how it takes place. The diversity of the learning process is relevant: from independent studying in the e-environment to online learning using the latest online platforms. The conception of the Open School actualizes the place and role of teachers and learners in the educational process, their shared (common) responsibility for the educational process, where the emphasis is shifted from the teacher-centred approach to the learner-centred approach in the learning process. The many roles and functions of the educator are important. Special emphasis is placed on counselling and instruction, promotion and support of self-managed learning, adaptation of the specifics of the learning content creating concise, comprehensible, and accessible e-learning tools, distance learning materials, e-books (Katane et al., 2021).

● ***Promotion and support self-directed or self-managed distance learning.*** It was previously emphasized that one of the main goals of lifelong guidance is to promote the readiness for career self-management of individuals as members of society, incl. to promote development of employability as internal resources set.

By the self-management of career processes, the scientists mean an individual's conscious influence on the own psychic phenomena (processes, conditions, and qualities), actions, his/her behaviour characteristic to him/her, including his/her self-directed and self-managed lifelong and lifewide learning in order to retain or change the nature and direction of their lifelong career (Īriste & Katane, 2016). Thus, self-directed or self-managed learning, on the other hand, is an important part of a self-directed career. This is also confirmed by one of the many definitions of a career: a career is an individual's lifelong progression in learning and work (Ryan & Hopkins, 2013; Watts, 2000).

Distance education is one of the forms of part-time education characterized by ICT-based self-directed and self-managed (mostly independent) distance learning.

The self-directed studies have cyclic nature, where the following fundamental stages could be identified (Īriste & Katane, 2016):

- *planning of independent studies* (identifying the own needs of learning; identifying the aims of learning; identifying the necessary resources, including human resources, material resources);
- *realization of independent studies* (choosing and using the corresponding learning strategies);
- *self-evaluation of independent studies* (evaluation of not only learning results, but also the study process, including learning skills and competencies).

Self-directed and self-managed learning is a characteristic feature of adults' autonomous learning process, however, it is no synonym to self-education. It may take place both independently (in an autodidactic manner) and by involving other people in the learning process due to two reasons: 1) under the influence of external conditions; 2) under the influence of an individual's own volition. The personality's self-management function is characteristic also to *the reflection*, which we would like to view from: 1) the aspect of professional development management; 2) the aspect of career self-management (Avis, Fisher, & Thompson, 2015; Baranova, 2012; Knowles, Holton, & Swanson, 2007).

The authors' experience shows that modern distance education secondary schools offer various pedagogical, psychological, methodological and technical support for promoting learners' self-directed/self-managed distance learning.

It is important to know that educators and learners have different roles to play in distance learning process than in traditional full-time (face-to-face) learning process (Isman, Altinay, & Altinay, 2004). For example, as distance education places a strong emphasis on motivated, self-directed, planned, independent learning, compared to full-time (face-to-face) education educators, the distance learning educator has an additional very important role to play, that of a *distance learning instructor* (Telg, 2021). The distance learning instructor introduces the distance learning plan, informs learners about the online tutorials and tests, the deadlines, the specific content to be covered, specifying what to focus on in a particular subject, digital learning materials and the environment in which they are available. The teacher, as a kind of guide, introduces the learners to the labyrinth of the distance education environment, presenting the learning objectives, tasks, possible problems or obstacles to learning that should be avoided. Offering professional development for teachers in the open education environment of distance education secondary schools is further evidence that distance education secondary schools provide lifelong guidance and are an important part of a lifelong guidance system.

● ***The offer of career e-counselling services.*** Like all schools, distance education secondary schools offer career counselling. As all learning and counselling processes in a distance education secondary school are carried out remotely using the latest ICT, the career counselling offered in this school can be called *Distance Counselling*, *Online Counselling* and/or *e-Counselling*. Both group and individual career counselling is offered (Carvalho, Mourão, & Freitas, 2023). *Cyber-counselling* is also a concept in contemporary academic terminology (Wang, Yuan, Shi, Tang, & Ši, 2022), which can be used in a narrow sense as a synonym for remote, online or e-counselling as mentioned above. At the same time, with the development of Smart technologies and the introduction of artificial intelligence into the everyday life of today's society, the concept of cyber-counselling is expanding, shedding light on the future perspectives of education and career e-guidance. Several researchers are already exploring the use of artificial intelligence in education (Bozkurt, Karadeniz, Baneres, Guerrero-Roldan, & Rodriguez, 2021; Chiu, Xia, Zhou, Chai, & Cheng, 2023; Holmes, Hui, Miao, & Ronghuai, 2021). Experience shows that distance education schools already have bot-counsellors who provide the most frequently requested information. But this is only the

beginning of the use of artificial intelligence in education and career counselling. At the same time, there is a debate in society, including programmers, scientists, about how much of the function of providing counselling services to humans can be entrusted to artificial intelligence (Adams, Pente, Lemermeyer, & Rockwell, 2023). There is research (Wang et al., 2022), supporting the assumption that Generation Z, also known as the technology generation, is more loyal and flexible in their attitudes towards cyber-counselling than other generations. Generation Z also accepts psychological cyber-counselling in an ICT-based learning environment.

As part of the lifelong guidance, distance education secondary schools have established extensive networks of social partners with colleges and universities, various sports clubs, e-learning platform providers, providers of open access learning resources, distance education schools' alumni, family members of learners, etc. to open new perspectives in the career development of their learners. Experience shows that the success stories of the graduates of distance education secondary schools, available in the schools' e-environments, play an important role in career support, inspiring, encouraging and motivating distance learners not to give up when they encounter their first difficulties in distance education and/or setbacks in their careers.

The results of the theoretical studies highlight the multifunctionality of the distance education secondary school as a lifelong guidance environment, both in terms of its broad target audience and the multifunctionality of the lifelong guidance offered, where the development of ICT competences, lifelong learning competences and career self-management competences play an important role.

3. The Offer of Lifelong Guidance Services According to the Principle of Flexibility

The broad, multidimensional meaning of career is linked to the many social and professional roles a person plays throughout his or her career, linking career development to the diversity of a person's life and living environment, where the focus is on career formation and development in interaction with a person's diverse life and work environment (Berlato, 2015; Hall & Chandler, 2005; Īriste, 2018).

As experience is broadly defined in contemporary definitions of careers, rather than just occupational experience, the definition implies that a career is shaped by a person's diverse experiences in different fields of human endeavour, so that careers can be viewed from different perspectives or aspects of a person's life and activities. Thus, the many dimensions of a career are also considered:

- professional development and employment;
- family, including up-bringing children;
- formal and non-formal education;
- membership of various governmental and non-governmental organisations, unions and associations;
- civic participation in local and national government;
- civilian and military participation in national defence;
- spending free time in meaningful ways, taking part in different types of recreational activities (e.g. tourism, sports, motorbike clubs, artistic groups: choirs, dance groups, folk theatre, applied arts or visual arts studios, etc.);
- other activities

that contribute to personal development, the acquisition of new social roles, the acquisition and accumulation of new experiences throughout a person's life.

Thanks to the inclusive, multifunctional environment of distance education secondary schools, learners are trying to combine their careers according to their life goals, combining

studies with other activities. They successfully combine their studies with: (▪) up-bringing young children in the family; (▪) household management; (▪) working, professional activities; (▪) succeeding in high-performance sport; (▪) developing a career in the fashion industry (as models)); (▪) acquiring knowledge, skills and competences in the field of national defence through their training and practical activities in the Jaunsardze (The Young Guard) or in the Zemessardze (The Latvian National Guard), which are an important part of the Latvian National Armed Forces, etc.

Experience also shows that many distance learners are able to combine several activities at the same time, which together shape their careers. This is possible thanks to the flexibility of distance education secondary schools offered lifelong guidance e-services, including distance education programmes and plans, and for individual schedules of tests. Modern distance education secondary schools offer various education opportunities thanks to ***differentiation, individualisation, personalisation of distance educational process*** (Andersone, 2017; Bray & McClaskey, 2014; Ozols, 2020):

- *differentiation* of the educational process involves providing methodological, didactic and organisational measures to adapt learning to the abilities, motivation and talents of a group of learners; internal differentiation involves providing groups of learners with different tasks appropriate to their abilities and interests, in which case the number of tasks, their degree of difficulty, timing, teacher support, working and reference materials etc. vary;
- *individualisation* of the educational process (learning according to individual learning plans, including individual timetables and deadlines for tests of learning achievements, with individual time allocated for learning the curriculum, etc.);
- as well as the *personalisation* of the educational process, primarily through the management of distance learning in the e-environment, where each learner has their own profile or learning account in the e-environment,

making a significant contribution to supporting learners' careers.

Thus, we can conclude, that ***the modern distance education secondary school as an open environment occupies an important place in the Latvian lifelong guidance system.***

Conclusions

The paradigm of lifelong guidance is considered a new paradigm that has gained its rapid development, popularity and relevance in the 21st century. The aim of lifelong guidance is to provide career support to people of all ages at all stages of their career development in a lifelong and continuous process. Moreover, career support is necessary on a continuous basis: in moments of career success and in moments of crisis. Provision of lifelong education is the spotlight of lifelong guidance, as it is key to successful career development and a guarantee of employment. Cooperation networks of all kinds, at both interpersonal and inter-institutional level, have an important place in the lifelong guidance system.

Therefore, providers and implementers of education of all kinds are seen as important parts of lifelong guidance system. Thus, nowadays distance education secondary schools are the providers and further developers of lifelong guidance. Thanks to the principles of openness, overcoming distance and flexibility, lifelong guidance e-services in modern distance education secondary school as open education environment is accessible to everyone, anywhere and anytime.

Modern distance education secondary schools have large target-audience: teenagers, young people, and adults, including persons with disabilities, who have opportunities to obtain education in alternative way. In parallel with school-aged students who receive formal education in a continuous learning process, the open distance education environment allows

to offer second chance formal education and/or recurrent formal education. These opportunities allow many young people and adults to return back to schools after study breaks at traditional full-times (face-to-face) schools. This is a great support in the realization of their life goals and career intentions. Distance education secondary schools offer also non-formal distance education. Non-formal distance education contributes to the development of different types of competences outside of formal distance education. It is an additional opportunity and also an alternative to formal distance education for the development of personal and various professional competences of learners, which are necessary for career development.

Formal and non-formal distance education is characterized by ICT-based self-directed and self-managed (mostly independent) distance learning. In turn, self-directed and self-managed learning is an important part of a self-directed career. The self-managed distance learning process develops not only ICT competences, methodological competences of distance education, but also lifelong learning competences and career self-management competences, which are very necessary for career self-development in continuous changing conditions in the information and knowledge society, including continuous changing labour market.

Many distance learners are able to combine several activities at the same time, which together shape their careers. This is possible thanks to the flexibility of distance education secondary schools offered lifelong guidance e-services, including distance education programmes and plans, and for individual schedules of tests. Modern distance education secondary schools offer various education opportunities thanks to *differentiation, individualisation, personalisation of distance educational process.*

Distance education secondary schools have established extensive networks of social partners with colleges and universities, various sports clubs, e-learning platform providers and developers, providers of open access learning resources, distance education secondary schools' alumni, family members of learners etc. to open new perspectives in the career development of their learners. The success stories (narratives) of the graduates of distance education secondary schools play an important role in career support, inspiring, encouraging and motivating distance learners not to give up when they encounter their first difficulties in distance learning and setbacks in their careers. Distance education secondary schools offer career e-counselling, also known as online counselling and cyber-counselling, which is an important part of lifelong guidance e-services.

The important place and role of distance education secondary schools in a lifelong guidance system is also evidenced by the teachers' continuous professional development, incl. professional training courses, offered in a distance education schools environment. Thus, distance education secondary schools can be called not only open distance education environment, but also learning or knowledge organizations where both teachers (educators) and students (learners) learn.

The modern distance education secondary school as an open environment occupies an important place in the Latvian lifelong guidance system.

References

Abrioux, D. (2009). Special Issues and Practices in Open Schooling. In D. Abrioux, & F. Ferreira (Eds.), *Open Schooling in the 21st Century* (pp. 3-21). Vancouver: Commonwealth of Learning.

Adam, T., & Metjalk, M. (2022). Experiences in distance education and practical use of ICT during the COVID-19 epidemic of Slovenian primary school music teachers with different professional experiences. *Social Sciences & Humanities Open, 5*(1), 100246. DOI: https://doi.org/10.1016/j.ssaho.2021.100246

Adams, C., Pente, P., Lemermeyer, G., & Rockwell, G. (2023). Ethical principles for artificial intelligence in K-12 education. *Computers and Education: Artificial Intelligence, 4,* 100131. DOI: https://doi.org/10.1016/j.caeai.2023.100131

Ambeth, I., & Saravanakumar, N. (2020). Open and Distance Learning (ODL) Education System: Past, Present and Future – A Study of an Unconventional Education System. *Journal of Xi'an University of Architecture & Technology, 12*(3), 77-87. DOI: https://doi.org/10.37896/JXAT12.03/012

Andersone, R. (2017). The Learning Environment in Today's School in the Context of Content Reform of Curriculum. In V. Dislere (Ed.), *Rural Environment. Education. Personality (REEP2017). 10*, pp. 17-22. Jelgava: LLU.

Askin-Tekkol, I., & Demirel, M. (2018). Self-Directed Learning Skills Scale: Validity and Reliability Study. *Journal of Measurement and Evaluation in Education and Psychology, 9*(2), 85-100. DOI: 10.3389/fpsyg.2018.02324

Avis, J., Fisher, R., & Thompson, R. (2015). *Teaching in Lifelong Learning: a Guide to Theory and Practice.* New York: Open University Press.

Balceraite, L., Lubkina, V., & Usca, S. (2021). Lifelong Learning as a Value. *Education Reform Education Content Research and Implementation Problems, 2*, 16-30. DOI: https://doi.org/10.17770/er2021.2.6665

Barnes, S.A., Bimrose, J., & Brown, A. (Eds.). (2020). *Lifelong Guidance Policy and Practice in the EU: Trends, Challenges and Opportunities. Final Report.* Brussels: European Commission.

Baranova, S. (2012). *Augstskolu docētāju profesionālā pilnveide tālākizglītībā* (Professional Development of the University Faculty in Further Education). PhD. Thesis. Rīga: LU. (in Latvian).

Bengtsson, J. (1989). Recurrent Education. In C.J. Titmus (Ed.), *Lifelong Education for Adult. An The International Handbook* (pp. 43-51). Leeds: University of Leeds DOI: https://doi.org/10.1016/B978-0-08-030851-7.50018-7

Berlato, H. (2015). The Dual Career Process in the Brazilian Perspective: Unraveling Typologies. *Revista de Administração, 50*(4), 507-522. DOI: https://doi.org/10.5700/rausp216.

Bloomer, M., & Hodkinson, P. (2000). Learning careers: continuity and change in young. *British Educational Research Journal, 26*(5), 583-597. DOI: https://doi.org/10.1080/01411920020007805

Bozkurt, A. (2019). From Distance Education to Open and Distance Learning: A Holistic Evaluation of History, Definitions, and Theories. In S. Sisman-Ugur, & G. Kurubacak (Eds.), *Handbook of Research on Learning in the Age of Transhumanism* (pp. 252-273). Hershey: IGI Global.

Bozkurt, A., Karadeniz, A., Baneres, D., Guerrero-Roldan, M.E., & Rodriguez, A.E. (2021). Artificial intelligence and reflections from educational landscape: A review of AI studies in half a century. *Sustainability, 13*(2), 1-16. DOI: 10.3390/su13020800

Bray, B., & McClaskey, K. (2014). *Personalization. Differentiation. Individualization.* Honolulu: Mid-Pacific Institute.

Carvalho, L., Mourão, L., & Freitas, C. (2023). Career Counseling for College Students: Assessment of an Online and Group Intervention. *Journal of Vocational Behavior, 140,* 103820. DOI: https://doi.org/10.1016/j.jvb.2022.103820

CEDEFOP. (2008). *From Policy to Practice: A Systemic Change to Lifelong Guidance in Europe.* Luxembourg: Office for Official Publications of the European Communities.

CEDEFOP. (2005). *Improving Lifelong Guidance Policies and Systems. Using Common European Reference Tools.* Luxembourg: Office for Official Publications of the European Communities.

CEDEFOP. (2023). *Second chance measures*. Retrieved from https://www.cedefop.europa.eu/en/tools/vet-toolkit-tackling-early-leaving/intervention-approaches/second-chance-measures

Chiu, T.K.F., Xia, Q., Zhou, X., Chai, Ch.S., & Cheng, M. (2023). Systematic literature review on opportunities, challenges, and future research recommendations of artificial intelligence in education. *Computers and Education: Artificial Intelligence, 4*, 100118. DOI: https://doi.org/10.1016/j.caeai.2022.100118

Clinton-Lisell, V. (2021). Open pedagogy: A systematic review of empirical findings. *Journal of Learning for Development, 8*(2), 255-268. DOI: https://doi.org/10.56059/jl4d.v8i2.511

Colin, L. (2018). *Open and Distance Non-Formal Education in Developing Countries. SpringerBriefs in Open and Distance Education.* New York: Springer.

Council of the European Union. (2004). *EU Council Resolution on Guidance*. Brussels: EU Council Resolution on Guidance.

Deķe, I., Ivanova, I., & Kristovska, I. (2000). *Tālmācības konsultanta rokasgrāmata* (The Distance Learning Consultant's Handbook). Rīga: Mācību apgāds. (In Latvian)

Douce, C. (2022). Perspectives on models and professional development. *Open Learning: The Journal of Open, Distance and e-Learning, 37*, 1-5. DOI: https://doi.org/10.1080/02680513.2021.2014801

Daija, Z., Krastina, L., & Rutkovska, S. (2018). *Guidance and outreach for inactive and unemployed – Latvia.* Riga: Academic Information Centre.

Dekeister, I., & Lapie, K. (Eds.). (2023). *Guidance for a Sustainable Development.* Luxembourg: Euroguidance National Centre.

Doyle, J. (Ed.). (2023), *Lifelong Learning at UCD, your chance to explore.* Dublin: UCD.

European Commission. (2023a). *Guidance and counselling in a lifelong learning approach.* Retrieved from https://eurydice.eacea.ec.europa.eu/national-education-systems/latvia/guidance-and-counselling-lifelong-learning-approach

European Commission. (2023b). *Refugee and migrant integration into education and training.* Retrieved from https://education.ec.europa.eu/focus-topics/improving-quality/inclusive-education/migrants-and-refugees

Hall, D.T., & Chandler, D.E. (2005). Psychological Success: When the Career is a Calling. *Journal of Organizational Behavior*, *26*, 55-176. DOI: 10.1002/job.301

Haughey, M., & Stewart, B. (2009). Using Information and Communication Technologies in Open Schooling. In D. Abrioux, & F. Ferreira (Eds.), *Perspectives of Distance Learning: Open Schooling in the 21st Century* (pp. 35-45). Vancouver: Commonwealth of Learning.

Hillman, Ch.R., & Ward, L. (2023). Outreach to distance learning faculty: A scoping review The *Journal of Academic Librarianship*, *49*(3), 102681. DOI: https://doi.org/10.1016/j.acalib.2023.102681

Holmes, W., Hui, Z., Miao, F., & Ronghuai, H. (2021). *AI and Education: A Guidance for Policymakers.* Paris: UNESCO.

Hornidge, A. (2011). 'Knowledge Society' as Academic Concept and Stage of Development - A Conceptual and Historical Review. In T. Menkhoff, H. Evers, Y. Chay, & E. Pang (Eds.), *Beyond the Knowledge Trap* (pp. 87-127). Singapore: World Scientific Publishing Co Pte Ltd. DOI: https://doi.org/10.1142/8121

ICODE. (2022). *ICODE Leadership Summit 2022: A fully hybrid event experience.* Retrieved from https://unausa.org/events/leadership-summit-2022/

Isman, A., Altinay, Z., & Altinay, F. (2004). Roles of the Students and Teachers in Distance Education. *Turkish Online Journal of Distance Education*, *5*(4), 1-10. Retrieved from https://dergipark.org.tr/en/pub/tojde/issue/16934/176798

Ivanova, I., Kristovska, I., & Slaidiņš, I. (1999). *Tālmācības rokasgrāmata* (The Distance Learning Handbook). Rīga: Mācību apgāds. (In Latvian)

Īriste, S. (2018). *Prospective Managers' of Hospitality Business Comptitiveness development and Evaluation Promotion in the Dual Study Environment of Higher Education Institution*. Summary of PhD. Thesis. Jelgava: LLU.

Īriste, S., & Katane, I. (2016). Facilitation of reflection for the self-development of competitiveness of the university students as prospective specialists. In A. Aboltins (Ed.), *Engineering for Rural Development*. *15*, pp. 659 – 668. Jelgava: LLU TF.

Jackson, Ch. (Ed.). (2014). *Lifelong guidance policy development: glossary.* Jyväskylä: Kirjapaino Kari. DOI: https://doi.org/10.1016/j.acalib.2023.102681

Jaunzeme, I. (2013). *Karjeras attīstības atbalsta sistēmas darbības izvērtējums Latvijā* (Evaluation of the performance of the career development support system in Latvia). Rīga: VIAA. (In Latvian)

Kalēja, A., & Katane, I. (2022). Pieaugušo mācību centra izglītības piedāvājums Austrumvidzemē mūžilgā karjeras atbalsta skatījumā (The educational offer of the adult learning center in East Vidzeme from the point of view of lifelong guidance). In I. Līce, J. Pāvulēns, & N. Vronska (Eds.), *Articles of the Scientific Conference of Students and Master's Students 2022* (pp. 115-121). Jelgava: LLU TF. (In Latvian)

Katane, I., & Katans, E. (2023). Lifelong Guidance as a Topicality for the Promotion of the Lifelong and Lifewide Multidimensional Career Development Nowadays. *Education. Innovation. Diversity*, *2*(7), 83-95. DOI: https://doi.org/10.17770/eid2023.2.7354

Katane, I., Katans, E., & Vāvers, V. (2021) Open Education as a Philosophically Methodological Basis for Distance Education. In V. Lubkina, L. Danilane, & O. Vindaca (Eds.), *Society. Integration. Education*. *2*, pp. 267 – 282. Rezekne: RTA. DOI: 10.17770/sie2021vol2.6385

Katane, I., Korna-Opincāne, E. (2020). The Readiness of Students for Career Self-Management. In V. Lubkina, & L. Danilāne (Eds.), *Society. Intagration. Education*. *3*, pp. 286-301. Rezekne: RTA. DOI: https://doi.org/10.17770/sie2020vol3.5169

Katane, I., Kristovska, I., & Katans, E. (2013). Ecological Approach in the Management of Distance Education. In P. Zakarevičius (Ed.), *Management Horizons in Changing Economic Environment: Visions and Challenges* (pp. 395 – 321). Kaunas: Vitautas Magnus University.

Katane, I., Kristovska, I., & Katans, E. (2015). Evaluation of Distance Education Environmental Advantages. In A. Aboltins (Ed.), *Engineering for Rural Development*. *14*, pp. 720 – 728. Jelgava: LLU TF.

Katans, E. (2019). *Programmētāju profesionālās attīstības veicināšana mācīties spējīgā IT uzņēmumā zināšanu pārvaldības skatījumā* (Promoting the Professional Development of Programmers in a Learning IT Company from the Perspective of Knowledge Management). Master's Thesis. Jelgava: Latvia University of Life Sciences and Technologies. (In Latvian)

Katans, E., Jurgena, I., Katane, I., & Svareniece, B. (2015). Development and Evaluation of Non-formal Education Programme "Programming" in the Environment of Distance Education Secondary School. In V. Lubkina, & S. Usca (Eds.), *Society. Integration. Education*. *4*, pp. 436 – 449. Rēzekne: RA. DOI: http://dx.doi.org/10.17770/sie2015vol4.418

Kazuša, A., Laiveniece, D., Rozenfelde, M., Slaidiņš, I., & Štāle, G. (2011) *Metodiskais līdzeklis mācību materiālu izveidei un īstenošanai e-vidē* (A methodical tool for creating and implementing learning materials in the e-environment). Rīga: IZM (In Latvian)

Kennedy, M. (2016). How does professional development improve teaching? *Review of Educational Research*, *4*, 945 - 980. DOI: 10.3102/0034654315626800

Knowles, M.S., Holton, E.F., & Swanson, R.A. (2007). *Lebenslanges Lernen: Andragogik und Erwachsenenlernen* (Lifelong Learning: Andragogy and Adult Learning). München: Elsevier Spektrum Akademischer Verlag. (In German).

Kyndt, E., Gijbels, D., Grosemans, I., & Donche, V. (2016). Teachers' everyday professional development: Mapping informal Learning activities, antecedents, and learning outcomes. *Review of Educational Research*, *86*(4), 1111-1150. DOI: https://doi.org/10.3102/0034654315627864

Lamb, S., Walstab, A., Teese, R., Vickers, M., & Rumberger, R. (2004). *Staying On At School: Improving student retention in Australia.* Melbourne: The University of Melbourne.

Leon, L.P., & Castro, P.L. (2014). ICT in Career Guidance. A Case Study of a "Blended Learning" Career Guidance Programme for Music Students. *Procedia – Social and Behavioral Sciences*, *116*, 2049 - 2058. DOI: https://doi.org/10.1016/j.sbspro.2014.01.518

Lewis-Perinbam, O., & Daniel, J. (Eds.). (2005). *Creating Learning Materials for Open and Distance Learning.* Vancouver: Commonwealth of Learning.

Lifelong Guidance in Finland. (2012). Helsinki: Ministry of Education and Culture. Retrieved from https://cica.org.au/wp-content/uploads/25493_Lifelong_guidance_in_Finland.pdf

Makārtijs, Dž. (Red.). (2015). *Vadlīnijas mūžilga karjeras atbalsta politikas un sistēmu izveidei: Pamatnosacījumi ES un Eiropas Komisijai* (Guidelines for Policies and Systems Development for Lifelong Guidance: A Reference Framework for the EU and for the Commission). Jiveskiles - Rīga: Jiveskiles Universitāte, Eiropas Mūžilga karjeras atbalsta politikas tīkls (EMKAPT). (in Latvian)

Opfer, V., & Pedder, D. (2011). Conceptualizing teacher professional learning. *Review of Educational Research, 81*(2), 376-407. DOI: https://doi.org/10.3102/0034654311413609

Ozoliņa A., Slaidiņš I., Slaidiņš V., & Žuga B. (2003). *Tālmācības un e-studiju metodika un tehnoloģija* (Methodology and technology of distance learning and e-studies). Rīga: IZM. (in Latvian)

Ozols, R. (2000). *Diferenciācija, individualizācija un personalizācija* (Differentiation, individualization, and personalization). Rīga: IKVD. (In Latvian)

Patru, M., & Khvilon, E. (2002). *Open and distance learning: trends, policy and strategy considerations.* Paris: UNESCO.

Puulmann, A., & Rammo, M. (Eds.). (2021). *Lifelong Guidance in Estonia 2021*. Tallin: Euroguidance Estonia 2021. Retrieved from https://www.vkotocka.si/wp-content/uploads/2021/04/veebi_LifelongZGuidanceZinZEstoniaZ21ZveebZ03-19Z3.pdf

Raimers, F., Schleicher, A., Saavedra, J., & Tuominen, S. (2020). *Supporting the continuation of teaching and learning during the COVID-19 Pandemic.* Paris: OECD.

Rammo, M., & Larini, M. (2023). *Lifelong Guidance in Estonia*. Tallin: The Education and Youth Board of Estonia 2023. Retrieved from https://eeagentuur.ee/wp-content/uploads/2023/03/life-long-guidance-estonia_web-1.pdf

Rice, M. (2020). Introduction. *Learning at a Distance: Guidance* (pp. 5-6). Michigan: Michigan State Board of Education.

Roffey, S. (2006). *Creating Learning Materials for Open and Distance Learning: Introducing the Commonwealth of Learning document template.* Vancouver: Commonwealth of Learning.

Romi, Sh. (2000). Distance Learning and Non-formal Education: Existing Trends and New Possibilities of Distance Learning Experiences. *Education Media International*, *37*(1), 39-44. DOI: 10.1080/095239800361509

Ross, S., & Gray, J. (2005). Transitions and Re-engagement through Second Chance Education. *The Australian Educational Researcher*, *32*(3), 103-140. DOI: 10.1007/BF03216829

Ryan, N., & Hopkins, S. (2013). Combining social media and career development learning: An intensive tertiary preparation program for disadvantaged youth: An Intensive Tertiary Preparation Programme for Disadvantaged Youth. *Australian Journal of Career Development*, *22*(3), 107-111. DOI: 10.1177/1038416213505274

Saidi, R., Sharip, A., Rahim, N., Zulkifli, Z., & Zain, S. (2021). Evaluating Students' Preferences of Open and Distance Learning (ODL) Tools. *Procedia Computer Science*, *179*, 955-961. DOI: 10.1016/j.procs.2021.01.085

Savelsberg, H., Pignata, S., & Weckert, P. (2017). Second chance education: barriers, supports and engagement strategies. *Australian Journal of Adult Learning*, *57*(1), 36-57.

Segbenya, M., Minadzi, V.M., Bervell, B., & Somuah, B.A. (2024). Online teaching intention among distance education course tutors: Modelling the effects of human resource factors and moderating role of gender. *Computers in Human Behavior Reports*, *13*, 100380. DOI: https://doi.org/10.1016/j.chbr.2024.100380

Slaidiņš, I. (2005). *Labās prakses rokasgrāmata e-studijās iesaistītajiem* (A guide to good practice for those involved in e-learning.). Rīga: RTU. (In Latvian)

Slaidiņš, I. (2003). *Tālmācība Latvijas augstskolās. Ievads e-studiju metodikā un tehnoloģijā* (Distance Learning in Latvian Universities. Introduction to e-study methodology and technology). Rīga: Izglītības un zinātnes ministrija. (In Latvian)

Sloka, A. (2022). *Skolu pedagogu profesionālās pilnveides veicināšana mūžilgā karjeras atbalsta ietvaros* (Promoting the Professional Development of School Teachers within the Framework of Lifelong Guidance). Master's Thesis. Jelgava: Latvia University of Life Sciences and Technologies. (In Latvian)

Smith, K., & Flores, R. (2005). *Managing curriculum, instruction, assessment & data in the information age.* Austin: Northside ISD.

Soika, I. (2015). Entity of Dialogue in Career Guidance of Secondary Vocational Schools. In V. Dislere (Ed.), *Rural Environment. Education. Personality (REEP2015). 8*, pp. 338 – 346. Jelgava: LLU.

Soika, I., & Vronska, N. (2023). Career Counselling in Human Resource Management. In N. Vronska (Ed.), *Rural Environment. Education. Personality (REEP2023). 16*, pp. 20 – 28. Jelgava: Latvia University of Life Sciences and Technologies. DOI: 10.22616/REEP.2023.16.002

Sultana, R.G. (2006). *Educating students for labour market needs: a guidebook for vocational school directors*. Warsaw: Polish Agency for Enterprise Development; ECORYS.

Sultana, R.G., & Watts, A.G. (2005). *Career guidance in Europe's public employment services: trends and challenge*s. Brussels: European Commission – DG Employment and Social Services.

Swanson, E. (2020). How Information Systems Came to Rule the World: Reflections on the Information Systems Field. *The Information Society*, *36*(2), 109-123. DOI: 10.1080/01972243.2019.1709931

Telg, R. (2021). *Instructional Methods for Distance Education.* Florida: University of Florida. Retrieved from https://edis.ifas.ufl.edu/publication/WC026

Tlili, A., Burgos, D., Huang, R., Mishra, S., Sharma, R., & Bozkurt, A. (2021). An Analysis of Peer-Reviewed Publications on Open Educational Practices (OEP) from 2007 to 2020: A Bibliometric Mapping Analysis. *Sustainability*, *13*(19), 10798. DOI: https://doi.org/10.3390/su131910798

Toni, A., & Vuorinen, R. (2020). Lifelong Guidance in Finland: Key Policies and Practices. In E. Hagaseth Haug, T. Hooley, J. Kettunen, & R. Thomsen (Eds.), *Career and Career Guidance in the Nordic Countries*. *9*, pp. 127-143. Leiden: Brill. DOI: https://doi.org/10.1163/9789004428096_009

Troshkova, M., & Katane, I. (2023). Employability of University Students as Prospective Specialists in the Context of Their Competitiveness. In N. Vronska (Ed.), *Rural Environment. Education. Personality (REEP2023). 16*, pp. 87 – 94. Jelgava: Latvia University of Life Sciences and Technologies. DOI: 10.22616/REEP.2023.16.010

Van Allen, J., & Katz, S. (2020). Teaching with OER during pandemics and beyond. *Journal for Multicultural Education*, *14*(3/4), 209-218. DOI: 10.1108/JME-04-2020-0027

Vāvers, V.J. (2022). *Tālmācības vidusskolas izglītības vides izvērtēšana atvērtās izglītības ietvaros* (Evaluation of the Educational Environment of Distance Education Secondary School within the Framework of Open Education). Master's Thesis. Jelgava: LLU. (In Latvian)

Vāvers, V., & Katane, I. (2021). Augstu sasniegumu sportistu – tālmācības vidusskolu skolēnu duālās karjeras pamatojums karjeras teoriju skatījumā (Theoretical Substantiation of the Dual Career of High Achievements Athletes – Students of Distance Education Secondary Schools in the Aspect of Career Theories). In I. Līce, & N. Vronska (Eds.), *Articles of the Scientific Conference of Students and Master's Students 2021* (pp. 35 – 40). Jelgava: LLU TF. (in Latvian)

Wang, J, Yuan, G.F., Shi, X., Tang, A., & Ši, V. (2022). Factors influencing attitudes toward cyber-counseling among China's Generation Z: A structural equation model. *Archives of Psychiatric Nursing*, *40*, 124-131. DOI: https://doi.org/10.1016/j.apnu.2022.07.011

Watts, A.G. (2000). Career development and public policy. *Journal of Employment Counseling*, *37*(2), 62-75.

Wu, D., & Contreras, C. (2020). *Fifteen years since: The World Summit on the Information Society.* New York - Danvers: Copyright Clearance Center. Retrieved from https://unctad.org/system/files/official-document/dtlstict2020d1_en.pdf

Yorkovsky, Y. & Levenberg, I. (2022). Distance learning in science and mathematics - Advantages and disadvantages based on pre-service teachers' experience. *Teaching and Teacher Education*, *120*, 103883. DOI: https://doi.org/10.1016/j.tate.2022.103883.

TEACHER'S PEDAGOGICAL SELF-EFFICACY FOR ENSURING THE QUALITY OF EDUCATION

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Abstract: *Nowadays we are living with conscious awareness of change around us. Therefore, openness to change and problem-solving skills become essential transversal competences for everyone. However, teachers often perceive changes in their work environment as problems rather than challenge and opportunity to improve the quality of education. Thus, persistence and creativity in solving problems becomes an important indicator of a teacher's self-efficacy. To promote the quality of education, teachers' pedagogical self-efficacy becomes important, which significantly affects the learning achievements of students. Pedagogical self-efficacy consists of the teacher's confidence in abilities regarding lesson planning, student assessment, choice of teaching strategies, etc. One of the basic principles of educational progress is inclusive education and acceptance of diversity. Creating a positive school psycho-emotional environment and creative pedagogical strategies also become important. The literature review is used as a research method to summarize the theoretical foundation of the topic. Theories provide a comprehensive explanation of a particular aspect of nature of the phenomenon of self-efficacy supported by evidence. The aim of the publication is to analyse the aspects of teacher's pedagogical self-efficacy focusing on the way it affects the quality of education, which also includes the promotion of students' internal motivation and preventing behavioural problems.*
Keywords: *confidence, teacher, inclusive education, motivation, pedagogical self-efficacy, positive social-emotional school environment.*

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Introduction

The study "Inclusive Education for Children with Special Needs in Latvia" (2020) emphasizes that a national project to change the school curriculum "School 2030" focuses on one of the basic principles of education which is inclusive education and acceptance of diversity.

Diversity of students, including diversity in ethnicity, language, abilities, talents, etc., is recognized and highly valued. Their different learning needs are met with the help of open dialogue and diverse methods and approaches, as well as safe and supportive environment with no discrimination of any kind to be tolerated (Beizītere, Grumolte-Lerhe, Ziemane, 2020). It is the teacher who is the main implementer of inclusive education at school. Not only the theoretical knowledge, skills, and experience of the teacher, but also his/her pedagogical self-efficacy and desire to implement inclusive education become important (Reigeluth, 1993; Desombre, Delaval & Jury, 2021; Nīmante, 2021; Athira & Poornima, 2023).

The order of the Cabinet of Ministers of the Republic of Latvia "Education Development Guidelines for 2021-2027" highlights: "insufficiently inclusive and emotionally safe environment in educational institutions" is mentioned as one of the problems to be solved (Izglītības un zinātnes ministrija, 2021).

To improve the situation, parents' participation in the education process and teachers' pedagogical self-efficacy, which significantly affects the learning achievements of students become important (Perera, Calkins, & Part, 2019).

Bandura (1997) in the theory of self-efficacy emphasizes that the provision of inclusive and emotionally safe environment, as well as the active cooperation of parents, are

qualities that can be largely influenced by the teacher's pedagogical self-efficacy (Bandura, 1997). At the same time, teachers can also perceive cooperation and communication with parents as a challenge, especially in relation to problems caused by student behaviour (Šķietniece, Pļaviņa, n.d.; Laiveniece, 2023).

Hattie (2009) believes that although it is the role of the teacher to provide support, feedback and discipline in the classroom, there is often less effort needed to demotivate students in comparison with making a lot of effort to motivate students, not giving up reaching learning goals (Hattie, 2009). He mentions persistence as one of the key indicators of teacher self-efficacy.

The professional knowledge, skills, attitudes, and competences required for teachers are emphasized in *the Standard of the Teaching Profession of Latvia.* As well as the ability to assess the needs of individual development, learning, personality, and social growth according to the approach of inclusive education, the ability to create inclusive, intellectually stimulating, physically and emotionally safe, development needs-oriented and cooperative learning environment, as well as the ability to develop the social and emotional competences are highlighted (Profesiju standarti, 2017). However, students' motivation and achievements are also closely related to teachers' positive attitude towards their work (Tschannen-Moran & Woolfolk Hoy, 2001).

The aim of the publication is to analyse the aspects of teacher's pedagogical self-efficacy focusing on the way it affects the quality of education, which also includes the promotion of students' internal motivation and preventing behavioural problems.

Methodology

The literature review is used as a research method to summarize the theoretical foundation of the topic. Theories provide a comprehensive explanation of a particular aspect of nature of the phenomenon of self-efficacy supported by evidence.

Characteristics of Pedagogical Self-efficacy and Its Importance in Ensuring the Quality of Education

How a teacher teaches is closely related to how a student learns. When planning a lesson, the teacher should consider not only what he wants to teach, but also how to organize the lessons in such a way as to promote and support the students' learning (Namsone & Čakāne, 2023, 109).

The formation of self-efficacy is a very complex process and is influenced by various factors. Self-efficacy is not fixed, but rather a generative ability in which cognitive, social, emotional, and behavioural skills are organized to achieve a goal (Bandura, 1997). Self-efficacy affects what activities a person chooses, what goals are set, how persistently they pursue a goal, and how much effort they invest (Damberga, 2015). However, one cannot talk about self-efficacy in cases where some irregular activity is considered. Self-efficacy can be seen when a job is done regularly, overcoming various obstacles (Bandura, 1997). Pedagogical self-efficacy is considered as a very important quality of a teacher (Fischer & Bilz, 2021).

Successful performance in professional work increases self-efficacy, while failure can also decrease it. Therefore, the teacher's cognitive understanding of ongoing processes at school becomes especially important (Lane, Lane, & Kyprianou, 2004).

In the process of promoting self-efficacy, important aspects are:

- the development of new knowledge, skills and competencies, such as professional development, experience, pedagogical observations, as well as mentor support for new teachers;
- regular self-assessment (assessment of task complexity and personal competence) (Bandura, 1997);
- the teacher's ability to be self-organized and proactive in his behaviour (Bray-Clark & Bates, 2003);
- confidence in one's abilities to influence positive changes in students (Tschannen-Moran & Woolfolk Hoy, 2001);
- the teacher's skills and actions in the lesson, which significantly affect the students' learning results (Namsone, Čakāne, Volkinšteine, & Butkēviča, 2018).
- self-control and the ability to use the most appropriate teaching methods in the learning process, to promote students' internal motivation (Tschannen-Moran & Woolfolk Hoy, 2001);
- internal motivation in achieving pedagogical goals (Bandura, 1997);
- conviction that problems or mistakes are not proof of failure or inability, but the need to update new approaches and strategies in professional work (Bandura, 1997);
- openness to receiving feedback from colleagues and students (Čakāne, 2018; Vanags & Mazpane, 2019);
- taking responsibility, for example implementing new teaching methods (Bray-Clark & Bates, 2003);
- awareness of diversity in the context of students' unique abilities as a resource and value;
- openness to cooperation (ESIAA, 2012).

However, sometimes embracing diversity and meeting unique individual needs of students can make teachers feel anxious (Laiveniece, 2023). Therefore, it is necessary to help reveal the potential of inclusive education (Dignath et al., 2022). It can be done through creating a support system that develops pedagogical self-efficacy in the educational institution (Bandura, 1997).

A teacher with high self-efficacy guides the student to awareness, improving mindfulness about learning process (Avramidis & Norwich, 2002). On the other hand, a teacher with low self-efficacy emphasizes control, as well as belief that not all students can be successful in the learning process (Tschannen-Moran & Woolfolk Hoy, 2001). A teacher's pedagogical self-efficacy also affects students' motivation, thus also learning, which, in turn, is positively affected by autonomy and a certain structure, as well as belonging and competence. On the other hand, a controlling environment negatively affects students and increases stress level (Ryan & Deci, 2017). It should be noted that there is a possibility that a teacher can simultaneously feel self-efficacious in one area, but less effective in another (Tschannen-Moran & Woolfolk Hoy, 2001). See Table 1 "*Theoretical framework of pedagogical self-efficacy"* for a summary of theoretical sources.

Table 1 ***Theoretical framework of pedagogical self-efficacy*** *(Bandura, 1997; Bray-Clark & Bates, 2003; Damberga, 2015; Čakāne, 2018; Vanags & Mazpane, 2019; Tschannen-Moran & Woolfolk Hoy, 2001; ESIAA, 2012)*

Factor forming self-efficacy	Description of self-efficacy forming factor
Self-efficacy as a generative ability	Cognitive, social, emotional, and behavioural skills are organized to achieve a goal (Bandura, 1997) Implementing new teaching methods (Bray-Clark & Bates, 2003).
Self-efficacy as a factor affecting choice of activities	Goal setting and the effort invested in achieving it (Damberga, 2015). Motivation in achieving pedagogical goals (Bandura, 1997). Confidence in one's abilities to influence positive changes in students (Tschannen-Moran & Woolfolk Hoy, 2001).
Regularity of expression of self-determination	Self-efficacy manifests regularly, overcoming various obstacles (Bandura, 1997).
Teacher`s self-efficacy contributes to	- regular self-assessment (assessment of task complexity and personal competence) (Bandura, 1997); - conviction that problems or mistakes are not proof of failure or inability, but the need to update new approaches and strategies in professional work (Bandura, 1997); - openness to receiving feedback from colleagues and students (Čakāne, 2018; Vanags & Mazpane, 2019); - openness to cooperation (ESIAA, 2012); - confidence in one's abilities to influence positive changes in students (Tschannen-Moran & Woolfolk Hoy, 2001); - self-control and the ability to use the most appropriate teaching methods in the learning process, to promote students' internal motivation (Tschannen-Moran & Woolfolk Hoy, 2001).

Thus, it can be concluded that pedagogical self-efficacy consists of: the teacher's confidence, student assessment skills, choice of teaching strategies, teacher's ability to solve behavioural problems in the learning process, emphasizing the promotion of students' awareness; learning achievement-oriented lesson planning; effective classroom management and collaboration skills; openness to diversity in the context of students' unique abilities, giving and receiving feedback, and taking responsibility (Bandura, 1997; Tschannen-Moran & Woolfolk Hoy, 2001, Friedman & Kass, 2002; Poulou, Reddy & Dudek, 2018; Čakāne, 2018; Vanags & Mazpane, 2019; Bray-Clark & Bates, 2003; ESIAA, 2012).

A favourable psycho-emotional environment for the realization of teachers' self-efficacy

Lack of students' engagement in class work, as well as low learning achievements are attributes might be associated with students' character and personality traits, for e.g., laziness can be mentioned as the reason for poor academic achievement. However, quite often in classroom situations there can be the lack of positive psycho-emotional environment, which contributes to the student's belief that the classroom is a safe and valuable place to be and to be motivated to learn (Reyes, Brackett, Rivers, White, & Salovey, 2012).

The learning process takes place mainly in the classroom – an environment where students and teachers interact socially and emotionally (with each other and in groups). As a result of this interaction, the emotional climate of the classroom is formed (Reyes et al., 2012). Reyes et al. believe that it is essential for a teacher to be able to analyze different situations in the school environment from the student's perspective (Reyes et al., 2012) as students with a higher sense of belonging to their school are more oriented towards cooperation, feel teacher`s support and receive feedback and are more satisfied with life (Kangro, Kiseļova, 2019).

Survey results show that 35.5% of children have experienced emotional abuse in Latvia. Emotional abuse affects person`s well-being and health (both physical and psychological) (OESD, 2019). Therefore, it is essential to emphasize the importance of inclusive environment at school. Inclusive environment is a result of a set of activities, which can be reached "by different paths and each may need different support" (Oliņa, 2020), creating a positive socio-emotional school experience (Heyder, Südkamp, & Steinmayr, 2020), to provide full-fledged support and understanding the nature of the special needs of students (Beizītere et al., 2020). There are conflicting studies on what qualities a teacher should possess to create a positive school psycho-emotional environment. However, in most cases it is the teacher with high pedagogical confidence who will intervene and solve the problem situation, for example in the case of mobbing (Fischer & Bilz, 2021). Students who study at schools with a high sense of collective self-efficacy of teachers are more tolerant towards each other (Fischer & Bilz, 2021). Thus, teachers` self-efficacy becomes an important prerequisite for good relationships between students.

Creating a positive school psycho-emotional environment is one of the areas of influence of pedagogical self-efficacy, which includes indicators such as positive learning opportunities, reduction of disruptive behaviour and psychological and physical safety. A positive school's psycho-emotional environment depends both on the professional competence of the teacher and on the student's motivation, set goals and attitude towards learning, which is largely revealed in individual`s behaviour. However, it is the teacher, with his/her pedagogical competence including classroom management skills, who chooses activities that match the students' interests and provides the basis for a positive school psycho-emotional environment. Hoffmann, Närhi, Savolainen, & Schwab (2021) emphasize the student's responsibility for maintaining a positive school psycho-emotional environment and conclude that:

a) student behaviour problems are largely the result of a lack of respectful relationships between teachers and students.
b) creative pedagogical strategies become relevant for creating a positive school psycho-emotional environment (Hoffmann, Närhi, Savolainen, & Schwab, 2021).

The school is also a driver of change in the local community (Trigo-Ibáñez & Santos Díaz, 2023) and the teacher's ability to create a positive environment is an important prerequisite for positive changes not only in students, but also in society.

Ryan & Deci (2017) emphasize that listening to students and responding to their questions promote students` motivation and reduces unacceptable behaviour. They also argue that the need for autonomy, belonging and competence is inherent for students (Ryan & Deci, 2017). It is the belonging and emotional attachment to the school environment that contributes to the acquisition of competences in later life, as opposed to an emotionally unresponsive learning environment in which they feel disconnected from school and are less involved (Reyes, Brackett, Rivers, White, & Salovey, 2012)

Individual`s motivation is higher when students feel competent, have sufficient autonomy, set goals, receive feedback, and are respected by others (Dörnyei, 2001), while humiliation, demotivating test results or conflicts with teachers or peers can directly affect the student's commitment to learning goals and engagement (Hattie, 2009). Therefore, teacher`s self-efficacy becomes relevant (Bandura, 1997; Tschannen-Moran & Hoy, 2001).

For inclusive education to be implemented successfully, it is also necessary to take care of cooperation with parents, which is also one of the directions of the Education Development Guidelines for 2021-2017 (Order No. 436 of the Cabinet of Ministers of the Republic of Latvia, 2021). A teacher's sense of self-efficacy also plays a big role in attracting parents to the school and the child's education process (Bandura, 1997).

Conclusions

Learning achievements of students and an inclusive and emotionally safe environment in an educational institution are facilitated by the pedagogical self-efficacy of teachers. However, the active cooperation of parents with the school becomes important as well. Creating a positive school psycho-emotional environment is one of the areas of influence of pedagogical self-efficacy, which includes indicators such as positive learning opportunities, reduction of disruptive behaviour and psychological and physical safety.

Improvement of new knowledge, skills and competences, regular self-assessment, teacher's ability to be self-organized, confidence in their ability to influence positive changes in students, teacher's skills, and activities in the lesson, which significantly affect students' learning results, self-control and skill become relevant in promoting teacher`s self-efficacy. Self-efficacy leads to choosing the most appropriate teaching methods in the learning process, to promote students' internal motivation, goal achievement, the belief that problems or mistakes are not proof of failure or inability, but the need to use new approaches and strategies in professional work, taking responsibility and diversity in the context of students' unique abilities as resource and value awareness.

Pedagogical self-efficacy is formed by the teacher's confidence in his/her abilities regarding lesson planning, student evaluation, choice of teaching strategies, as well as the teacher's ability to solve behavioural problems in the learning process, emphasizing the promotion of students' awareness. Perseverance is also an indicator of teacher self-efficacy.

References

Avramidis, E., & Norwich, B. (2002). Teachers' attitudes towards integration / inclusion: a review of the literature. *European Journal of Special Needs Education*, *Volume 12,* 129.-147. DOI: https://doi.org/10.1080/08856250210129056

Bandura, A. (1997). *Self – efficacy, The Exercise of Control.* New-York: W. H. Freeman and Company.

Beizītere, I., Grumolte-Lerhe, I., Ziemane, I. (2020). *Pētījumi. Iekļaujošā izglītība bērniem ar speciālām vajadzībām Latvijā.* Retrieved from: https://www.saeima.lv/petijumi/Ieklaujosa_izglitiba_berniem_spec_vajadzibam_Latvija.pdf

Bray-Clark, N., & Bates, R. (2003). Self-Efficacy Beliefs and Teacher Effectiveness: Implications for Professional Development. *The Professional Educator, Volume XXVI,*. 13-22. Retrieved from https://files.eric.ed.gov/fulltext/EJ842387.pdf

Čakāne, L. (2018). Formatīvās vērtēšanas lomas pastiprināšanās, īstenojot mācīšanos iedziļinoties. In D. Namsone (Ed.), *Mācīšanās lietpratībai* (pp. 131.-145.). Rīga: LU Akadēmiskais apgāds. doi:https://doi.org/10.22364/ml.2018.5

Damberga, I. (2015). Mācīšanās. In K. Mārtinsone, & A. Miltuze (Eds.), *Psiholoģija 1* (pp. 258.-287.). Rīga: Apgāds Zvaigzne ABC.

Desombre, C., Delaval, M., & Jury, M. (2021). Influence of Social Support on Teachers' Attitudes Toward Inclusive Education. *Frontiers in Psychology*, *Volume 12*. DOI: https://doi.org/10.3389/fpsyg.2021.736535

Dignath, C., Rimm-Kaufman, S., van Ewijk, R., Kunter M. (2022). Teachers' Beliefs About Inclusive Education and Insights on What Contributes to Those Beliefs: a Meta-analytical Study. *Educational Psychology Review, Volume 34*, 2609–2660. DOI: https://doi.org/10.1007/s10648-022-09695-0

Dörnyei, Z. (2001). *Teaching and Researching Motivation.* Essex: Pearson Education Limited.

Fischer, S. J., & Bilz, L. (2021). Teachers' Self-efficacy in Preventing and Intervening in School Bullying: a Systematic Review. *International Journal of Bullying Prevention, Volume 3*, 196-212. DOI: https://doi.org/10.1007/s42380-020-00079-y

Hattie, J. (2009). *Visible Learning A synthesis of over 800 meta-analyses relating to achievement.* London and New York: Routlege.

Heyder, A., Südkamp, A., & Steinmayr, R. (2020). How are teachers' attitudes toward inclusion related to the social-emotional school experiences of students with and without special educational needs? *Learning and Individual Differences, Volume 77*. DOI: https://doi.org/10.1016/j.lindif.2019.101776

Hoffmann, L., Närhi, V., Savolainen, H., & Schwab, S. (2021). Classroom behavioural climate in inclusive education -a study on secondary students' perceptions. *Journal of Research in Special Educational Needs, Volume 22*. DOI: https://doi.org/10.1111/1471-3802.12529 .

Izglītības un zinātnes ministrija. (2021). *Izglītības attīstības pamatnostādnes 2021.-2027. gadam "Nākotnes prasmes nākotnes sabiedrībai"*. Retrieved from https://likumi.lv/ta/id/324332-par-izglitibas-attistibas-pamatnostadnem-20212027-gadam

Kangro A.; Kiseļova R. (2019). *OESD - PISA. Izglītības un zinātnes ministrija.* Retrieved from https://www.izm.gov.lv/sites/izm/files/media_file/latvija_oecd_starptautiskaja_skolenu_novertesanas_programma_2018.pdf

Laiveniece, S. (2023). *Pedagogi konferencē diskutē par vecāku līdzatbildību*. Retrieved from https://www.liepajniekiem.lv/zinas/sabiedriba/pedagogi-konference-diskute-par-vecaku-lidzatbildibu/

Lane, J., Lane, A., & Kyprianou, A. (2004). Self-Efficacy, Self-Esteem and Their Impact on Academic Performance. *Social behavior and personality, 32*(3), 247-256. DOI: https://doi.org/10.2224/sbp.2004.32.3.247

Martinsone, B. (2024). Mācīšanās sākas ar attiecību veidošanu. *Skolas Vārds, 2.*, pp. 12.-15. Retrieved from https://e-biblioteka.liepu.lv/magazine/skolasvards/all

Namsone, D., & Čakāne, I. (2023). Kā iegūt pierādījumus par mācīšanu un mācīšanos stundā – ceļā uz mācīšanos iedziļinoties. In D. Namsone, *Datu zinātība skolai* (pp. 102.-124). Rīga: LU Akadēmiskais apgāds. DOI: https://doi.org/10.22364/dzs.23.06

Namsone, D., Čakāne, L., Volkinšteine, J., & Butkēviča, A. (2018). Kā novērtēt skolotāju sniegumu un mērķtiecīgi pilnveidot skolotāju prasmes. In D. Namsone (Ed.), *Mācīšanās lietpratībai* (pp. 158.-188). Rīga: LU Akadēmiskais apgāds. DOI: https://doi.org/10.22364/ml.2018.7

Nīmante, D. (2021). *Dažādība un iekļaušanās izglītībā.* Rīga: Latvijas Universitāte, Pedagoģijas, psiholoģijas un mākslas fakultāte.

OESD. (2019). *PISA 2018 Results. What School Life Means for Students' Lives, Volume III*. PISA, OECD Publishing, Paris. DOI : https://doi.org/10.1787/acd78851-en

Oliņa, Z. (2020). Daudzveidība kā norma – skolā katram bērnam. *Domāt.Darīt.Zināt. Nr.12*, pp. 4.-5. Retrieved from Skola2030: https://skola2030.lv/admin/filemanager/files/2/NL_12.pdf

Perera, H. N., Calkins, C., & Part, R. (2019). Teacher self-efficacy profiles: Determinants, outcomes, and generalizability across teaching level. *Contemporary Educational Psychology*, *58*(3), 186-203. DOI: https://doi.org/10.1016/j.cedpsych.2019.02.006

Poulou, M. S., Reddy, L. A., & Dudek, C. M. (2018). Relation of teacher self-efficacy and classroom practices: A preliminary investigation. *School Psychology International*, *40*(1), 25-48. DOI: https://doi.org/10.1177/0143034318798045

Reigeluth, C. M. (1993). *Principles of Educational Systems Design*. Pacific Grove, California: Springer, Berlin, Heidelberg.

Reyes, C., Brackett, M., Rivers, S., White, M., & Salovey, P. (2012). Classroom Emotional Climate, Student Engagement, and Academic Achievement. *Journal of Educational Psychology*, *104*(3), 700.-712. DOI: https://doi.org/10.1037/a0027268

Ryan, R., & Deci, E. (2017). *Self-Determination Theory: Basic Psychological Needs in Motivation.* New York: The Guilford Press.

Skolotāju izglītība iekļaušanai - Iekļaujošu skolotāju profils. (2012). Retrieved from https://www.european-agency.org/Latvie%C5%A1u%20valoda/publications

Šķietniece, I. & Pļaviņa, V. (n.d.). *DISKUSIJA I Iekļaujošā izglītība Latvijā – cik tālu esam?* Retrieved from https://www.skolasvards.lv/projects/1/diskusija-i-ieklaujosa-izglitiba-latvija-cik-talu-esam

Trigo-Ibáñez, E., & Santos Díaz, I. (2023). Empirical approach to the gender gap in students' reading consumption in international contexts. *Frontiers in Psychology*, *Volume 14*. DOI: https://doi.org/10.3389/fpsyg.2023.1304890

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher Efficacy: Capturing an Elusive Construct. *Teaching and Teacher Education*, *17*(7), 783.-805. DOI: https://doi.org/10.1016/S0742-051X(01)00036-1 .

Vanags, E., & Mazpane, I. (2019). *Kā attīstīt pašvadītu mācīšanos?* Retrieved from https://www.skola2030.lv/lv/jaunumi/blogs/ka-attistit-pasvaditu-macisanos

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EDUCATION. INNOVATION. DIVERSITY (EID)

SOCIAL- EMOTIONAL LEARNING IN THEATER ART CLASSES IN SCHOOL EDUCATION

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Abstract. *This article is a theoretical study that explores the concept of social-emotional learning in the context of Theatre Arts lessons in Latvian school education. In the last decades, the belief that it is not enough for the student to acquire factual knowledge only has been strengthened. The concept of social-emotional learning was created 20 years ago and has only now been introduced into Latvian educational guidelines. The study aims to establish a theoretical basis for the possibility of implementing effective social-emotional learning in Theatre Art lessons by developing social-emotional skills in students such as self-regulation, independent thinking, cooperation, and social awareness. The results certify that social-emotional learning fits organically into Theatre Arts and teachers' awareness of teaching social-emotional skills is of great importance in this process.*
Keywords: *drama methods, creative drama, project "Skola 2030", social-emotional learning, theater art.*

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Introduction

A crucial aim of education for the future is for students to develop a strong sense of self-control and self-directedness, to be able to actively influence and steer their lives in a meaningful and responsible way. Today's school youth will have to fill jobs that don't even exist yet, deal with problems that are not yet identified, and cope with problems that today's adults have not yet solved or even recognized (Schoon, 2018). Social and emotional foundations thus help children and young people meet the challenges of the future. Young people need to be able to adapt consistently, learn new skills, meet, and overcome challenges, and work collaboratively to address important issues confronting our individual and collective lives. The capacity to do so draws on social and emotional skills, such as resilience, self-regulation, trust, empathy, and collaboration (OECD, 2019).

Social-emotional learning cannot be perceived as a separate subject rather it must be integrated in all areas of school education. The skills developed for both academic and SEL help students to understand and be aware of the learning content, increase their interest and engagement in the learning process as well as reduce disruptive behaviors (Elias, 2003).

The author of the study "Drama-based social-emotional learning" - Hakan Usakli (Usakli, 2018) – in his paper concludes that drama is an effective tool for teaching social-emotional learning to children. Drama is essentially a collective art - it requires teamwork, which, in turn, develops communication skills - both verbal and non-verbal - the ability to adapt, to express oneself, to find solutions through collaboration. It develops imagination, and creativity and promotes a healthy release of emotion.

Drama as an educational tool has already been used in the last century but significant evidence of its effectiveness emerged only at the end of the 20th century, prompting changes in formal education (Van de Water, 2020).

Methodology

This article is a theoretical study conducted using a method of literature review that highlights relevant theories and practices in the area. Educational theories were analyzed to define concepts and explain the phenomena of interest. The relevant literature and research studies were selected on the topic reflecting the need to integrate social-emotional learning into Latvian school curricula, as well as the findings of theatre educators - practitioners, and scholars on the benefits of theatre art (drama) in the development of students' personal, social, and collaborative skills.

The study aims to establish a theoretical basis for the possibility of implementing effective social-emotional learning in theatre arts lessons. The research methods are literature review and conceptual analysis. To reach the aim of the study, the following objective was set: To analyze literature to find out the theoretical basis of social-emotional learning and theater arts in education and topics included in the subject Theater Arts developed by the project "Skola2030".

Two research questions were raised to achieve the aim formulated above:

1) Is it possible to effectively integrate socio-emotional learning into Latvian primary and secondary school curricula in theatre arts lessons?
2) What are the benefits of social-emotional teaching in Theater Arts lessons?

Social-emotional learning

The term "social-emotional learning" (SEL) is relatively new – it was created in 1994 by the Fetzer Institute, an American Foundation that supports a range of initiatives aimed at promoting the social-emotional well-being of young people, preventing attention problems and risky behavior in educational settings (Aglieati et al., 2020, p. 10). Social-emotional learning is the process of acquiring and applying knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, develop and express empathy for others, build and maintain supportive relationships, and make responsible decisions (CASEL, n.d.).

Over the past 20 years, many evidence-based approaches and strategies have been developed to promote social-emotional learning in educational settings. The Collaborative for Academic, Social, and Emotional Learning (CASEL) has developed approaches, that encompass thoughts, attitudes, and behaviors related to self-awareness, self-direction, social awareness, relationship skills, and responsible decision-making in five clusters of competencies (Greenberg, 2023).

Research shows that social-emotional skills could be taught to students like any other subject at school. Research also shows that social-emotional skills improve academic learning. Combining academic education with social-emotional skills training in schools improves students' ability to recall and apply what they have learned. It's not just about improving learning achievement, which is, of course, an important side-effect of a pupil's well-being at school. It is also about a sense of responsibility and care for oneself and others.

In this way, the learning process ensures not only the student's academic growth but also his or her human growth. The school climate also improves, students can implement learning more effectively in their classrooms and teachers feel more inspired and able to perform their duties more successfully (Elias, 2003). "Schools worldwide must give children intellectual and practical tools they can bring to their classrooms, families, and communities. Social-emotional learning provides many of these tools" (Elias, 2003, p. 6).

Social-emotional learning in Latvia

Academic and social-emotional learning are equally important. If this is not the case, alienation, and unwillingness to go to school develop, which of course has an impact on academic knowledge, negatively affecting a child's future. Until now, educational institutions emphasized academic learning, but the new educational content "Skola2030" requires that educators strengthen social-emotional learning as one of the goals of education (Zaķe, n.d.).

There are good reasons to be concerned about children's well-being in schools in Latvia - 35% of students reported being bullied at least a few times a month, compared to 23% on average across OECD countries (OECD, 2019). More than one in ten (11%) of 15-year-olds in the Latvian school system said they were frequently bullied, 10% said they were regularly threatened by other students and 12% said they were physically assaulted "at least a few times each month" (European Commission, 2020). The results also do not show high cooperation skills - in Latvia, 53% of students reported that their schoolmates co-operate with each other (OECD average: 62%) (OECD, 2018). A negative attitude of peers toward a teenager undermines his working abilities, the joy of life disappears, and a bad feeling of well-being develops. Mockery hurts and does not give a positive feeling either to those who are mocked or to those who are mocked. Negative behavioral habits during school years can manifest themselves in later life (Špona, 2006, p. 73).

An original social-emotional learning program has been created in Latvia. It is based on generally recognized principles, which exist in other similar programs in the world but is designed according to the Latvian cultural environment. Methodological tool included in the project "School 2030" program was created according to scientific knowledge and approach defined by the new competency-based educational standard (Bērziņa, Martinsone, Niedre, n.d.). As part of the project, a study on the risks of social exclusion was conducted in 25 Latvian schools (Raščevska, Raževa, Martinsone, Tūbele, Vecenlazdāns, Vazne, 2012). The results revealed close relationships between 12-19-year-old students' learning difficulties, impulsivity, aggressive behavior, self-regulation difficulties, anxiety, and social/family factors. Teachers described half of all students as a group of problems (36% - with insufficient academic achievements and 14% - with behavioral and emotional problems) (Martinsone & Niedre, 2013).

The study reports, that in several focus groups the teachers admitted that since the initial implementation of the SEL program, they do not always have time to complete all eight lessons according to the plan (in each school year, 10 SEM hours are planned to be integrated into the work plan for teachers/educators as intended by the program of "Skola2030" (Skola 2030, n.d.) This points to the issue of how to ensure that the SEL ideas become established in the schools' culture outside of the SEL class lesson and brings to the forefront the role of the school administration in integrating the SEL as a crucial part of the school's identity (Martinsone & Vilciņa, 2017).

Theater Art in Latvian school education

A new subject for the personal development of students Theatre Arts (original name Drama) has been applied in Latvia. The increasing need and demand to creatively solve life's problems, to communicate purposefully and confidently in the work environment, and to make courageous decisions in everyday situations require every student to regularly practice public speaking, presentation skills, and purposeful and positive communication. The teaching content of theater art is planned to be integrated into grades 1-3, but from 4th to 9th grade, a certain number of hours are allocated for it (Tamsone, 2018).

The subject of Theatre Arts aims to enable the pupil to learn the language of theatre arts by learning about different performing arts techniques, to get to know the concepts of theatre

art and the most important processes in the development of theater, to develop skills in body plasticity, spoken language, cooperation with the audience, experience the individual and collaborative creative process, creativity, developing self-directed learning, creativity and entrepreneurial abilities, as well as collaborative skills, evaluate new the impact of the work on the audience (Krišāne, Niedre, & Smildziņa, n.d.).

Social- emotional learning in the context of Theater Art

Even understanding the importance and valuable benefits of social-emotional learning it has been a struggle for teachers to implement SEL concepts in their strict and formal curriculum. That is why the arts in general have been proven to be a fruitful way to invoke social-emotional learning (Kriezi, 2023).

Drama can reach students who are not reached through traditional methods (Van de Water, 2020). Drama can be a very effective learning tool for students at risk of poor educational outcomes. It is a way for at risk students to outwardly represent what is happening internally since often these students are not ready or do not know how to verbally express their thoughts, feelings, and emotions. Drama classes give low-performing students in other subjects the opportunity to take on leadership roles, improving their self-confidence, which in turn can have a positive impact on learning engagement and performance in other subjects, as well as on attitudes towards school in general (Schiller, 2008).

In an interview with the theater director and pedagogue Elmārs Senkovs, Alnis Auziņš (Auziņš, 2019) found out that playing theater can have a similar effect as visiting a psychologist. The student can act out what worries, bothers, or angers them, thereby helping to become aware of the problem, understand its cause, as well as try to find solutions.

By putting the problem on the stage, the pupil can become aware of it and further understand both its causes and possible solutions. In this process, the teacher's intelligence, sensitivity, and knowledge not only of theater but also of psychology play a particularly important role. Other pupils are also involved in the search for a solution to the problem, which allows them to become more empathetic and learn from the mistakes of others. “Theater is worthwhile because it teaches you to get along better, get to know yourself, and learn from different life situations and mistakes made by others. Also, theater teaches that human actions always have certain causes and consequences” (Kraģis, 2022, p. 6). One of the most important terms in theater is "motivation". It is recommended that students empathize with characters who do not represent their views, thus allowing them to delve into and understand the motivations of the "opposite side".

The creators of the Theater Arts subject program expect that the students will choose examples from their own experience, so the teacher must be ready to manage the emotions and solve the individual problems of each student, which may arise in different situations of the learning process (Krišāne, Niedre, & Smildziņa, n.d.). Theater pedagogue Ligita Smildziņa (Smildziņa, 1998) is convinced that a theater arts teacher must work hard on himself, and develop a positive energy in his personality and the ability to give back. She uses methods in her work with children that she claims are in line with group psychotherapy methods.

Idars Kraģis (Kraģis, 2022) also advises teachers to take into account that the most important thing for pupils to learn in the subject of Theater Arts is their awareness of their personality and abilities, as well as the acquisition of communication and interpersonal skills. Recalling that theater arts are not an end in themselves, but a means to acquire these skills.

Konstantin Stanislavsky (Stanislavsky, 1951, p. 26) in his book “Working as an Actor” reveals, that an actor's “main task is not only to depict the external phenomena of the role's life but above all to create on the stage all the plays and the inner life of the person being

portrayed, applying our feelings to this life of a stranger and including in his life all the essential content of our soul".

In primary school (grades 1-3), where the subject of Theatre Arts is integrated into other subjects, topics such as Creating a Fairy Tale, Puppet Theatre, and Masquerade are taught. In the 4th-6th grade, students will study topics such as Etude, Speech, and Opposites (staging an excerpt from a play). In grades 7-9, the subject of Theater Arts includes Improvisation, Production in Process, and Classical Theater Forms (Comedy and Tragedy). In learning about these topics, pupils should develop the habit of being responsible for working together as a team, and respect the creativity and opinions of the teacher and classmates. In addition, to develop the habit of being aware of one's own emotions, interests, and aptitudes and to develop artistic expressions, spontaneity, and empathy (Krišāne, Niedre, & Smildziņa, n.d.).

By linking the objectives of theatre arts to social-emotional learning, based on the "Skola2030" curriculum, the primary teacher should help pupils identify how others feel and try to predict how others might feel in different situations, taking into account facial expressions and body language. They should be encouraged to see commonalities with their peers, to express their personal to learn to accept that others may have different opinions and experiences and that these differences may affect relationships. Children do not yet know how to be empathetic with others and fully understand how their behavior makes others feel (Bērziņa, Martinsone, & Niedre, n.d.). According to Daniel Goleman (2001), a child reaches the highest level of empathy towards adolescence. Empathy is a major influence on future choices - it underpins ethical behavior.

Primary school pupils should already be much more aware that there can be different points of view, be able to express their needs and emotions verbally and be able to work together in a group and deal with conflict situations. In grades 6th - 8th all the above skills should be developed. Students should be asked to be more independent, responsible, decision-making, cooperative, and conflict-resolving. As empathy develops, pupils become increasingly aware of the needs of others, thus reducing the focus on the self. At the end of primary school, the pupil focuses on the development of his or her identity (Bērziņa, Martinsone, & Niedre, n.d.).

By using role-play as a method, real problem situations are successfully imitated, during which, even knowing that the situation is being acted out, children experience real emotions that are similar to real life. By experiencing these situations, the method helps to better understand and delve into the given situation and teaches how to act. Evaluation, experience sharing, and feedback are provided during the game. Children learn to look for answers to unclear questions together and to look for alternative ways of doing things (Engere, Gleške, Kvjatkovska, Šulce, 2014). The role-play method is an effective way of developing the child's personality. It helps the child to control himself, overcome his momentary desires, and look at the situation from the point of view of other people. It is indispensable in overcoming the child's emotional barriers and crises, in understanding new situations, as well as in areas where the exchange of experience is necessary (Engere, Gležke, Kvjatkovska, & Šulce, 2014).

"Creative drama is a broader term covering the terms creative dramatics, role-playing, improvisational drama, and educational drama" (Riazoglu, 2006, p. 116). Creative drama - which is also used as an educational tool – explores behavior and creativity in a safe place. It helps children develop their social skills and improve in academic subjects (Iddon, 2022).

During creative dramatic activities, students learn not to be afraid to make mistakes – there are none in creative drama. This approach liberates students and can improve their attitude towards school. It's a helpful tool not only when working with at-risk students and those with low academic outcomes but also with gifted students who are often afraid to take intellectual risks and make mistakes – creative drama helps them overcome these fears. Creative drama activities teach students to listen to each other, wait their turn, respect each other's personal space, receive immediate feedback, and use it for their development (Cash, 2018).

The choice of text material to perform with students in class is also important. The author of the book "The Development of the Student's Personality - the Main Task of Education" Janis Valbis (Valbis, 2005, p 145) has concluded: "The desire for harmony is closely related to the desire to get to know the cultural heritage. Myths, legends, fairy tales, fables, and novels, both reality and fantasy are important for the development of a person's identity. Moreover, it does not matter how you get to know them - as a film, a book, or a play. They offer role models, challenge and heroism, desirable goals, and a philosophy of life".

It should be noted that it is not important to choose didactic works or to separate characters into "good" and "bad", "heroic" and "coward", but to analyze them more deeply, to try to understand the biography and motivation of each. By working with such an approach, the student will be able to create an interesting role and also develop social-emotional skills.

Drama methods offer invaluable resources that help us to imagine, create, debate, show, and understand what it means to be human (Van de Water, 2020).

Conclusions

The theoretical study allows the author to formulate several conclusions:

1. In theater arts, the ability to cooperate is of great importance - both with a partner, improvising a role play, creating a performance in a team, and with the audience, showing a play or giving a speech (or mono-performance). Successful cooperation requires both the ability to understand oneself and to be understood.
2. The program of the subject Theater Arts introduced in Latvian school education includes improvisation, etude, role plays, cooperation with a partner and audience, self-directed learning, dramatic conflict modeling, using the relationship between people and everyday life observations of situations, etc., that helps students to develop social-emotional skills as well as help in achieving personal and collective goals.
3. In the subject of Theater Arts, students not only express themselves and collaborate, but also set achievable goals in the form of puppet theater, play production, improvisational games, or self-created theater production.
4. Theater arts is based on personal experience, so the teacher must be able to help the student manage his emotions, solving individual problems with each student in different situations of the learning process. It requires the social-emotional competencies of a Theater Arts educator which is one of the most important aspects of teaching social-emotional skills for students.
5. The results of the research show that SEL can be integrated into Theatre Arts lessons and must be implemented also in other subjects as well as in everyday life.

References

Agliati, A., Aguilar Barriga, P., Álvarez Cifuentes, P... & Valverde Jiménez, B. (2020). *Handbook: Methodological techniques for assessing students' social-emotional skills at school*. Retrieved from https://www.visc.gov.lv/sites/visc/files/data_content/rokasgramata_met_pan_sem1.pdf

Auziņš, A. (2019). *No huligānisma līdz mākslai. Izšķirošais ir vēstījums*. Retrieved from https://www.skola2030.lv/lv/jaunumi/blogs/no-huliganisma-lidz-makslai-izskirosais-ir-vestijums

Bērziņa, S., Martinsone, B., & Niedre, R. (n.d.). *Sociāli emocionālā mācīšanās. Nodarbību plāni 1.–12. klasei. Skola2030 metodiskais līdzeklis*. Retrieved from https://mape.skola2030.lv/resources/12532

European Commision. (2020). *Education and Training Monitor 2020, Country analys. Directorate- general for Education, Youth, Sport and Culture*. Retrieved from https://pmb.cereq.fr/doc_num.php?explnum_id=8273

CASEL. (n.d). *Fundamentals odf SEL*. Retrieved from https://casel.org/fundamentals-of-sel/

Cash, R. M. (2018). *Boost Social- Emotional Learning with Creative Dramatics*. Retrieved from https://freespiritpublishingblog.com/2018/04/17/boost-social-emotional-learning-with-creative-dramatics/

Elias, M.J. (2003). *Academic and social-emotional learning. The International Academy of Education.* Retrieved from http://www.iaoed.org/downloads/prac11e.pdf

Engere, I., Gleške, L., Kvjatkovska I., & Šulce, D. (2014). *Lomu spēles sociālpedagoģiskajā darbā*. Rīga: Aisma.
Greenberg, M. T. (2023). *Evidence for social and emotional learning in schools*. Learning Policy Institute. DOI: https://doi.org/10.54300/928.269
Goulmens, D. (2001). *Tava Emocionālā intelligence.* Rīga: Jumava.
Iddon, C. (2022). *Benefits of Creative Drama Techniques.* Retrieved from https://study.com/learn/lesson/creative-drama-techniques-examples.html
Kraģis, I. (2023). *Teātra māksla 4.-6. klasei.* Rīga: Zvaigzne ABC.
Kriezi, I. (2023). *Exploring Opportunities for Social and Emotional Learning in Drama Classes.* Retrieved from https://urn.fi/URN:NBN:fi:oulu-202311213258
Krišāne, I., Niedre, I., & Smildziņa, L. (n.d.). Teātra māksla 1.-9. klasei. Mācību priekšmeta programmas paraugs. Valsts izglītības satura centrs. Retrieved from https://mape.gov.lv/catalog/materials/5756B160-ADEE-4C38-A821-91F827F839FF/view
Raščevska, M., Raževa, A., Martinsone, B, Tūbele, S., Vucenlazdāns, P., & Vazne, Ž. (2012). *Skolotāju aptaujas par skolēnu mācīšanās darbību un uzvedību (SASMDU) ticamība un validitātes*. Rīga: Latvijas Universitāte
Riazoglu, F. (2006). Bringing Life to EFL Classes by Creative Drama. Creative Drama Journal, 116. Retrieved from https://dergipark.org.tr/tr/download/article-file/145066
Schiller, J. (2008). *Drama For At-Risk Students: A Strategy For Improving Academic and Social Skills AmongPublic Middle School Students. School of Education*. Dominican University of California. San Rafael, CA. Retrieved from https://files.eric.ed.gov/fulltext/ED502068.pdf
Martinsone, B., & Niedre, R. (2013). *Sociāli emocionālā audzināšana. Rokasgrāmata*. Rīga.
Martinsone, B., & Vilciņa, S. (2017). Teachers' Perceptions of Sustainability of the Social Emotional Learning Program in Latvia: A Focus Group Study. *Journal of Teacher Education for Sustainability, 19*, 2, 5- 20. Retrieved from https://files.eric.ed.gov/fulltext/EJ1218149.pdf
OECD. (2018). *What 15-year-old students in Latvia know and can do. Programme for International Student Assasment (PISA) Results from PISA 2018*. Retrieved from https://www.oecd.org/pisa/publications/PISA2018_CN_LVA.pdf
OECD. (2019). *OECD Future of Education and Skills 2030. OECD Learning Compass 2030. A Series of Concept Notes*. Retrieved from https://www.oecd.org/education/2030-project/contact/OECD_Learning_Compass_2030_Concept_Note_Series.pdf
Schoon, I. (2018). *Conceptualising Learner Agency: A Socio-Ecological Developmental Approach*. *LLAKES Research Paper 64.* Centre for Learning and Life Chances in Knowledge Economies and Societies, Institute of Education, University College. Retrieved from https://www.llakes.ac.uk/wp-content/uploads/2021/03/LLAKES-Research-Paper-64-Schoon-I.pdf
Stanislavsky, K. (1951). *Aktiera darbs.* Rīga: Latvijas Valsts Izdevniecība.
Skola2030. (n.d.). *Kā attīstīt caurviju prasmes?* Retrieved from https://mape.skola2030.lv/resources/6285
Smildziņa, L. (1998). *Ievads teātra spēles pamatos.* Rīga: RaKa.
Špona, A. (2006). *Audzināšanas process teorijā un praksē.* Rīga: RaKa.
Tamsone, I. (2028). *Drāma kā darbības māksla.* Skola 2030. Retrieved from https://www.skola2030.lv/lv/jaunumi/blogs/drama-ka-darbibas-maksla
Usakli, H., (2018). *Drama Based Social Emotional Learning*. Retrieved from https://eric.ed.gov/?id=ED582409
Valbis, J. (2005). *Skolēna personības attīstība - izglītības virsuzdevums*. Rīga: Zvaigzne ABC.
Van de Water, M. (2020). *Drama in education: why drama is necessary.* DOI: https://doi.org/10.1051/shsconf/20219802009
Zaķe, D. (n.d.). *Kāda ir mūsu bērnu sociāli emocionālā labsajūta?* Retrieved from https://iic.lv/kada-ir-musu-bernu-sociali-emocionala-labsajuta/

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VISUAL REMAINDERS AS A PEDAGOGICAL COMMUNICATION TOOL FOR TEACHERS, STUDENTS AND PARENTS

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Abstract. *When conversation takes place, especially when the conversation impacts one's whole life, it is crucial that all participants can speak 'the same language'. Teachers should understand students and their parents, students should understand their parents and teachers, but parents should understand their children and also the teachers in order to reach a common goal, which is to provide the best possible education to the students. Therefore, it is important that when conversation is raised about a student's learning process, all participants maintain focus on the content of the conversation. The aim of this study is to explore how the application of visual remainders can improve communication between teachers, students, and parents. To reach this goal and determine if a visual remainder is a useful tool in pedagogical conversations, the scientific literature and normative documents were analysed, and a survey was conducted at a rural basic education school in Latvia. To analyse the obtained data, the Mann-Whitney correlation coefficients were calculated. This study proves that the participants emphasize different aspects of pedagogical conversations, therefore it is important to find a common solution on how to maintain the focus between all parties involved.*
Keywords: *Basic school, education, pedagogical communication, visual remainder*

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Introduction

Whenever teaching and learning is considered, as well as when looking for answers on how to improve the learning process, often teachers, students and school environment get mentioned, but it is important to remember that learning starts at home – with parents. The teachers have rich knowledge on learning content and curriculum, teaching and learning strategies, assessment practices, but parents have the knowledge of the context such as home environment, family dynamics, cultural influences as well as individual needs and preferences of the child. Teachers and administrators "walk alongside" with parents in their lifelong work to educate their children, it is a process of "caring for" and "caring about" the children (Pushor, 2023). Therefore, both home and school have a huge impact on students' learning process.

When teachers communicate with their students or when parents (in this publication 'parents' include all caretakers/guardians who make decisions about students' education) talk to their children, they should remember that every person, and so every child and every adolescent, has the right to express his/her opinion, especially when important decisions are made that have a direct influence on their lives (Calaprice & Nuzzaci, 2018). Sometimes it comes naturally, but there are times when students, parents and teachers need the reminders on how to talk, how to communicate and what to say to each other. The basic principle of communication is the exchange of information – any act by which one person gives to or receives from another person information about one's needs, desires, perceptions, beliefs, knowledge, or affective states (Mehrabian, 1972).

J. H. Stronge and X. Xu (2021) suggest that good and qualitative communication is the foundation for building positive relationships with parents, families, and the community in general. Parents' involvement in educational process of their children is crucial, and it has long

term benefits. It is especially important at the early childhood, because the first years at school is a critical period for building psychological, social and cognitive resilience in a dynamic society, and the research suggests that children of involved parents do better at school (Cole, 2021). G.N.Yoga, S.Ketut and S.M. Hery (2017) emphasizes positive pedagogical relationships stating that in a definite community, like classroom, politeness must be implemented because rudeness creates a conflict and misunderstandings between the teacher and the students (Yoga, Ketut & Hery, 2017). This implies that creating a supportive and polite classroom environment is crucial not only to enhance students' positive beliefs about their scholastic skills, such as literacy, communication, study skills, creativity, etc., but also gives them constructive feedback concerning their performance (Gruman, Schneider, & Coutts, 2017).

Part of communication is talking; therefore, teachers should consider when and how they talk to students and parents and *vice versa*, especially if the goal of communication is to improve the students' learning process. There are six basic talk repertoires for effective teaching and learning – talk settings, everyday talk, learning talk, teaching talk, questioning, and extending (Quigley, Muijs, & Stringer, 2019). But verbal expression is only one way of communication; there are teachers, students and parents who perceive information better in other modes. There are three basic ways of learning – visual, auditory, and kinesthetic (Willingham, 2005), followed by alternative communication or alternative information exchange types. Alternative communication includes symbols, movements, drawings, graphics etc., starting from simple communication aids to complicated computer programs (Bela et al., 2023).

The aim of this study is to explore how the usage of visual remainders can improve communication between teachers, students and parents in a rural basic education school. To better understand the correlations and to determine whether there are statistically significant differences in the responses of the groups of respondents, the data were collected in tables using Microsoft Excel and data processing program SPSS. The Mann-Whitney U test was performed to determine statistically significant differences between the respondents' ratings. The theoretical basis of this study, as well as data analysis, is grounded in the work of S. M. Cole (2021), S. Calaprice and A. Nuzzaci (2018), K. L. Mapp (2003), D. Pushor (2023), as well as previous research of the author (Pavulena & Pavulens, 2023).

Methodology

To achieve the aim of this study, a following research question was put forward: How does the usage of visual remainders improve communication between teachers, students and parents. After analysing the normative documents on communication and the principles of communication in the learning process, a Visual Remainder was developed – a visual guide containing main principles of a qualitative conversation. Then a survey was developed in order to explore how the application of this visual remainder improve communication between teachers, students and parents. Data was summarized in charts, Microsoft Excel and SPSS software was used for data processing. To analyse the differences between subgroups of respondents Mann-Whitney U was calculated.

The research was conducted in a rural basic education school, which employs 24 teachers and accommodates 153 students, located in Latvia, Dienvidkurzeme region. This school provides two educational programmes – basic education programme and the special education programme (Cabinet Regulation No. 747, 2018), Grades 1 to 9. The students who participated in the survey all are from Grades 5 to 9 (age 10 – 15). The research on the characteristics of the particular age group suggests that in this stage youngsters develop logical thinking forming the ability to analyse one's actions (Kalvāns, 2018; Dhanasekhar, Ponsekar, & Kumari, 2021).

After the Visual reminder (see Figure 1) was developed, it was handed out to all the teachers of the rural school with request to expose it in a well-visible place in their classrooms, so that the students could see it when they enter the classroom.

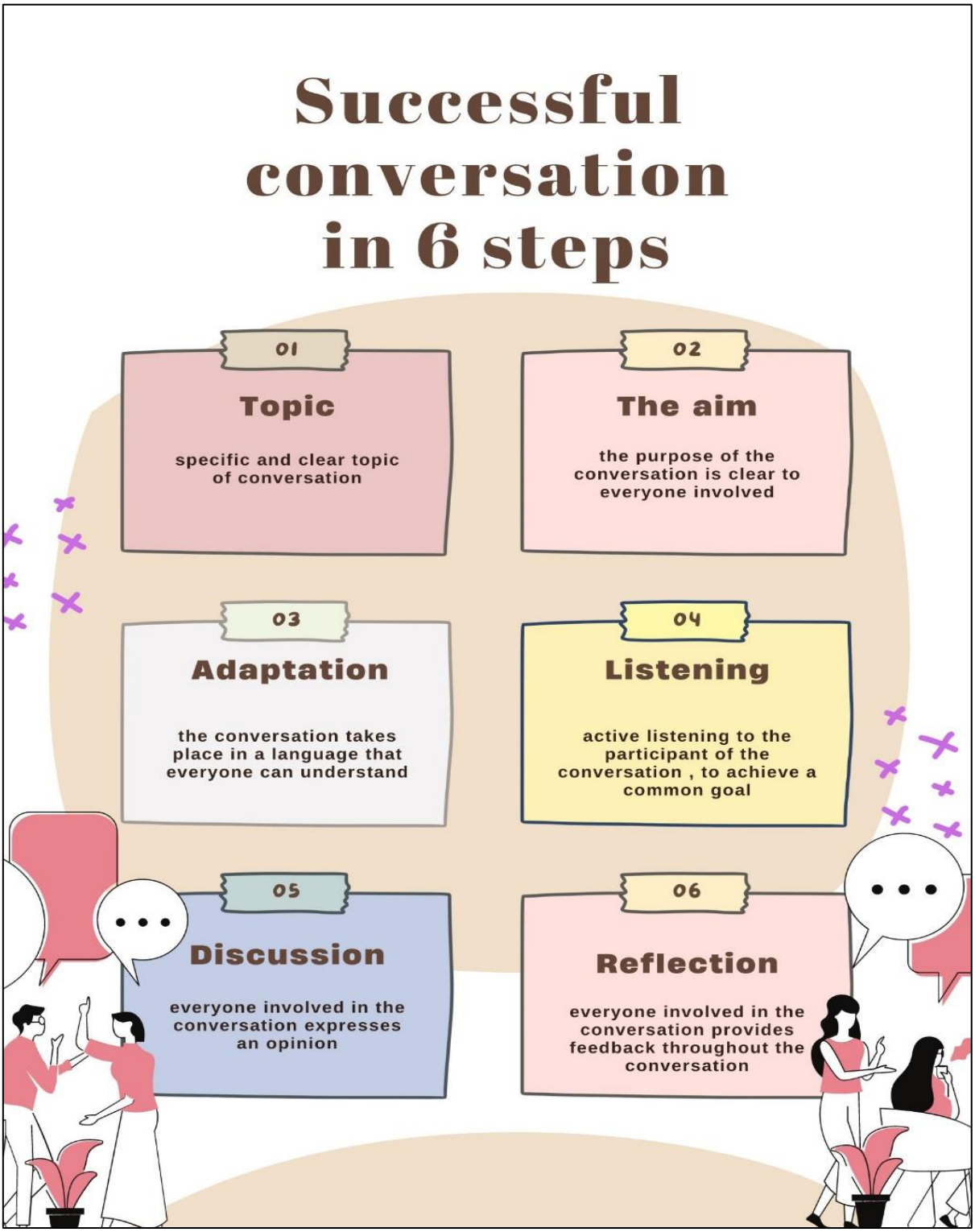

Figure 1 ***Visual remainder "Successful conversation in 6 steps"***

The Visual reminder is meant also for the teachers as a reminder of how to talk to their students and parents, as well as for parents when they come to school to discuss their children's

learning progress. Reminders were sent out to all 230 parents using *e-klase* (Latvian education systems portal designed for monitoring learning process and communication between teachers, students, parents and school administration (E-klase, 2024)), but only 116 of them opened the letter containing the Visual reminder and read the information about the date when the survey is going to take place.

The actual survey was also conducted in *e-klase* as it is a secure and authentic e-environment for data collection, where every teacher, student and parent can log in using a unique username (personal ID number) and password. The participation in the survey was open for one week in April 2024. 24 teachers, 80 students and 230 parents (from all class groups) were invited to participate, but only 99 parents opened the letter containing the survey. The overall number of participants: 45 students (57% of those invited) in the age group from 11 - 16 years (the average age of students is 14 years, the most commonly reported is 15 years of those 48,9% male and 51,1 % female students), 11 teachers (46% of those invited) and 22 parents (23% of those who opened the letters). The semi-structured survey contained of 6 questions: 4 open-ended and 2 structured questions. The participants were asked to rate different steps of the Visual reminder presented, rating them from least important to most important in the scale from 1 to 6. Open ended questions were related to visual remainders' impact on conversations between the teachers, students and parents.

Research results and Discussion

The numbers of survey participants show a low involvement on the parents' side. As previously stated, the parent involvement in education process is crucial, and there are high expectations towards parents from the schools and the teachers, but in reality, the parent involvement is often lower than expected, which may suggest that school might not be enough welcoming or paying too little attention for nurturing relationships between the parents and the school staff (Mapp, 2003). Parents' involvement in the school correlates with the school programmes which encourage their involvement and participation (Chavkin, 1993). The low activity of parents in terms of reacting to the information sent could be related to low involvement in formal school activities. Formal education is developed to instruct children outside of mature community activities (Rogoff, 2003), and this raises a question – why parents should get involved if the system as such does not provide the opportunity. Some changes are required in school procedures in order to encourage parents to participate in school activities. For example, "Learning by Observing and Pitching In" (LOPI) can be introduced in formal education, which opens opportunities to incorporate, collaborate, share and also support the contributions of families and communities in education (Rogoff, 2014).

One of the aspects that impacts communication is perception – how the given information is understood. If the receiver of information is not interested in the message (or is insufficiently focused or does not give a full attention to decoding), this may reduce the amount of information received or the accuracy of the information transmitted to them (Barnard, 1955). That can open a space for "jumping to conclusions" or subjective interpretation of given information. That's why it is crucial to clearly formulate the topic, set achievable common goals, and come to an agreement about place and time where conversation will take place, accessible for all parties involved (Pāvulēna & Pāvulēns, 2023).

The Visual reminder was developed containing 6 steps (Topic, The aim, Adaptation, Listening, Discussion. Reflection) for modelling a qualitative conversation (see Figure 1):

The data analysis was conducted for each group of respondents separately, keeping in mind that if someone has seen the Visual reminder, that does not mean he/she has read it. Therefore, a question was asked: "Have you seen the visual remainder?" with a follow up question "Did you read the information contained in the Visual remainder?" (see Figure 2).

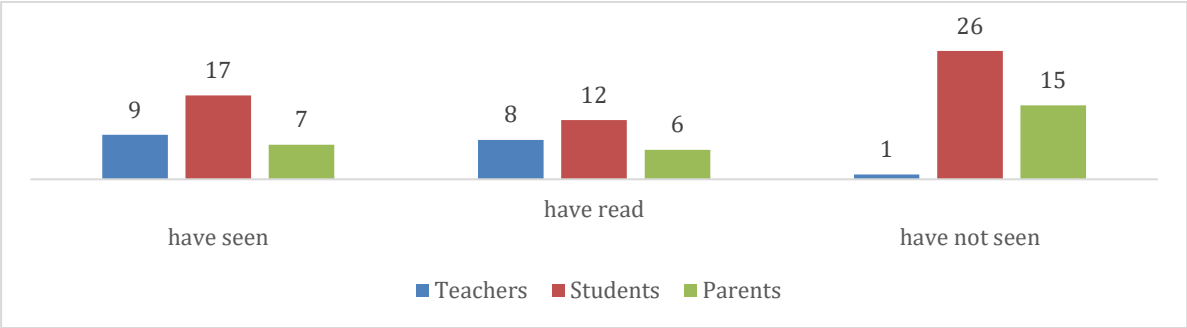

*Figure 2.**Awareness about the Visual reminder***

Before the survey was conducted, teachers were specifically asked to place the Remainder in a clearly visible place in their classrooms. Most of the teachers put the Reminder on the classroom door, so that the students can see it when they enter or leave the classroom. Some teachers put the Visual reminders on their newsstands. However, the survey data proved than more than a half of the students (62%) had not seen the Visual reminder. When the respondents were asked "what was the reason why you did not read the visual remainder, if you saw it?", the following responses were obtained: *"There was too much information on the newsstand, so the Visual reminder just blended in, and I did not perceive it's message"* (female, 14 y/o); or*"It was too boring to read!"* (male, 16 y/o) or *"The letters were too small, I need bigger ones to better understand and to make it easier to read*" (male, 13 y/o). Several parents and also teachers stated *"lack of time"* as the main reason for not reading the Visual reminder.

All three of the respondent groups were asked to rate the six steps of the Visual remainder, with the aim to understand which of these steps they consider as most important. The obtained data was collected and processed, so the average answer could be determined for each of the respondent groups. To determine if there is a difference between male and female student ratings, the data was analysed separately for each group (see Figure 3).

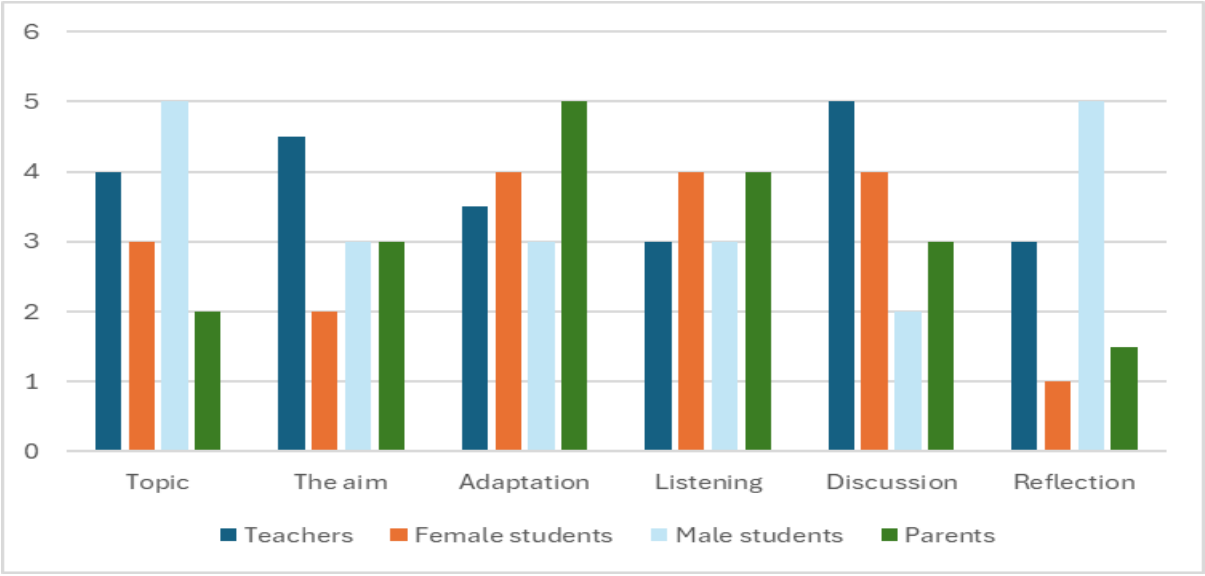

*Figure 3 **Importance of conversation steps***

The obtained data show that for male students the most important steps are "Topic" and "Reflection". While filling the survey, a discussion emerged between two 9th grade students. They were discussing the importance of knowing the topic of conversation and being able to reflect on conversation, as well as the importance of knowing what they understood in

conversation. When asked to assess the importance of each step stating the reason (why?), the student (male, 16 y/o) answered: *"It's less stressful to talk, when I know the topic of conversation"*. "The aim" in male and female groups of students was rated similarly, but "The aim" and "Discussion" got higher scores from the teachers as in the context of pedagogical communication, a common goal is raising awareness about students' education. In an open-ended question, the teachers also acknowledged that the most important steps are "The aim" and "Discussion". Analysing the data for the step "Adaptation", the biggest difference is shown in ratings between male students and parents. Male students' lowest score (min) = 1, highest (max) = 5, Mo = 3 (Mo - the value of a variable which occurs most frequently), but for parents min = 4, max = 6, Mo = 5. To determine if there are statistically significant differences, the Mann-Whitney criterion was calculated between male students and parents with regards to how important it is to adapt to each other in conversation, and the difference was determined (p - value = 0.047). "Listening" was rated similarly in all respondent groups. As data clearly states, in each of the respondent groups there are different priorities in conversation, so it is important to find a way, how these priorities are addressed, so everyone can be heard and understood.

To better understand how the Visual remainder improves communication in each of sub-groups (teacher - student, teacher - parent, parent - student), two open ended questions were raised for each group of respondents. For example, the teachers were asked "How has the Visual reminder affected your communication with parents about the student's learning process?" and "How has the visual reminder affected your communication with students about their learning process?" The same questions were raised for other two respondent groups, just changing to who the question is being addressed.

56% of students replayed that there are no changes in communication between them and the teachers ("*I have not noticed any differences"* (female, 13 y/o). The rest of the student respondents stated that the Visual reminder has helped, and it is easier to talk to the teachers now. All the teachers, who have used the Visual reminder, found some aspects that need to be improved in their communication. 30% stated *"Now I am thinking more about adaptation, when I talk to students"*, 20% said that: *"We set a common goal before talking"*. When teachers responded about communication with parents, 50% of teachers stated that there is no improvement observed. Several teachers emphasized that communication is getting more specific *"I think about the topic, so conversation is more specific"*, five parents acknowledged that conversing with teachers is getting better, but only one parent said: *"I don't have problems communicating"*. Only ¼ of all student respondents saw the improvement in communication between them and their parents, for example, *"Now we will be more understanding of each other"* (female, 14 y/o). Rest of the students did not detect any difference. One parent stated *"I have my principle, and I hold to that",* but the rest of parents said that everything works well in conversation between them and their children, and visual remainder improved communication only "*a little"*.

In the authors' opinion, there are other aspects with regards to pedagogical communication, which can be explored in future and could impact the obtained data, such as lack of guidelines for proper usage of visual remainders, accessibility of visual remainder and the time frame for research.

Conclusions

Based on the analysis of scientific literature and obtained empirical data, several conclusions can be drawn:

- Communication between teachers, students and parents on students' learning process is more effective, when teachers discuss the problems immediately, right after the problem issue has occurred. If the problem can be solved within the

school, then in most cases the parents do not get informed about the problem, which leaves them more in the role of observers rather than active participants.

- In order to understand why all parents don't engage in communication and do not read the messages sent from school, it is important to look at the family as a microsystem, where in many cases just one parent reads the messages and then discusses the content with the other parent, but then both make the decision.
- Male students rate "Adaptation" lower than parents (p=0.047), but they prioritize the steps "Topic" and "Reflection", so it opens up a question for further research on the differences of perception of information, communication and mutual understanding.
- When visual reminders are developed, the students' opinion on design should be considered, so that it would be more interesting, attractive and easier to read, using simpler ways of expression.
- Teachers should be encouraged to discuss the steps with their students, in order to better understand the importance of good communication, because it can impact students' academic achievements in the future.
- Visual reminders should be more approachable for parents, not only in digital format on *e-klase* environment, but also available in different formats, so that the parents can use it as a reminder at home as well, when talking to their children about the learning process.

References

Barnard, G. A. (1955). *Simple proofs of simple cases of the coding theorem.* London: Butterworths.

Bela B., Ozola I., Rasnača L., Rezgale-Straidoma E., Roga-Vailza V., Romāne-Meiere A., & Rozenvalde I.. (2023). *Sociālā darba vārdnīca*. Rīga: Latvijas Universitātes Akadēmiskais apgāds.

Cabinet Regulation No. 747. Regulations Regarding the State Basic Education Standard and Model Basic Education Programmes (2018). Riga, Republic of Latvia.

Calaprice S. & Nuzzaci, A. (2018). *The Importance of Listening to Children and Adolescents: Making Participation Integral to Education*. Cambridge Scholars Publishing.

Chavkin, N. F. (1993). *Families and Schools in a Pluralistic Society*. Albany: State University of New York Press.

Cole, S. M. (2021). Contextualising parental involvement at the elementary level. *International Journal of Early Years Education*, *29*(2) 139–153. DOI: https://doi.org/10.1080/09669760.2020.1777844

E-klase. (2024). E-klase. Retrieved from https://www.e-klase.lv/par-e-klasi/personas-dati

Gruman A. J., Schneider F., W, & Coutts L., M. (2017). *Applied social psychology : understanding and addressing social and practical problems.* Los Angeles: SAGE.

Kalvāns, Ē. (2018). *Attīstības psiholoģija*. Rēzekne: Rēzeknes Tehnoloģiju akadēmija.

Kesavelu D., Anandapandian P. A. & Kumari S. (2021). Stages of Psychological Development of Child-An Overview. *International Journal of Current Research and Review. 13*(13) 74-78. DOI: http://dx.doi.org/10.31782/IJCRR.2021.131320

Mapp, K. L. (2003). Having their say: Parents describe why and how they are engaged in their children's learning. *School Community Journal*, *13*(1), 35–64. Retrieved from http://www.adi.org/journal/ss03/Mapp%2035-64.pdf

Mehrabian, A. (1972). *Nonverbal Communication*. New York: Transaction Publishers.

Pāvulēna L., Pāvulēns J. (2023). Conversations between Rural Basic School Students, Parents and Teachers about Students' Learning. *Rural environment. Education. Personality*. *16*, 112-120. DOI: https://doi.org/10.22616/REEP.2023.16.013

Pushor, D. (2023). Education [and Schooling] in a Pivotal Time. *LEARNing Landscapes, 16*(1):21-25.

Quigley A., Muijs D. & Stringer E. (2019). *Metacognition and self-regulated learning - Guidance Report*. London: Education Endowment Foundation.

Rogoff, B. (2003). *The Cultural Nature of Human Development*. New York: Oxford University Press.

Rogoff, B. (2014). Learning by Observing and Pitching in to Family and Community Endeavors: An Orientation. *Human Development, 57*(2-3), 69–81. DOI: https://doi.org/10.1159/000356757

Stronge J. H. & Xu X. (2021). *Qualities of Effective Principals*. Alexandria: ASCD.

Willingham, D. T. (2005). Ask the Cognitive Scientist: Do Visual, Auditory, and Kinesthetic Learners Need Visual, Auditory, and Kinesthetic Instruction? *American Educator*. Retrieved from https://www.aft.org/ae/summer2005/willingham

Yoga, G. N., Ketut S. & Hery S. M. (2017). The Implications of Politeness Strategies Among Teachers And Students In The Classroom *SHS Web of Conferences. 42*, 00067 DOI: https://doi.org/10.1051/shsconf/20184200067

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ASSESSING PHYSICAL LITERACY OF PRE-SCHOOL CHILDREN – A SYSTEMATIC LITERATURE REVIEW

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Abstract. *In recent years, it has become topical to study the concept of physical literacy in early childhood, based on empirical evidence of how the formation of skills takes place at this stage. The question remains open for the researchers - how to standardize and simply assess the physical literacy given its broad framework. One of the definitions of physical literacy explains the essence and importance of this concept in a person's life as internal motivation, confidence, competence in physical activities, knowledge and the person's own responsibility for applying it in practice. The systematic literature review was conducted with the aim of identifying a safe, sustainable and easy-to-apply physical literacy assessment tool for preschool children aged 3 to 7 years.*
Methodology. The systematic literature review protocol includes sources from such databases as EBSCO host (MEDLINE, Eric), Google Scholar, Science Direct, ERIH PLUS, Scopus and Web of Science for the period 2018 – 2024, which title, summary and keywords meets the certain criteria and content includes information on physical literacy assessment tools for the age specified. The content analysis was performed for the identified tools to find out their relevance for the assessment of physical, affective, cognitive, and participatory domains of physical literacy.
Results. As a result of the content analysis, 26 different tools for assessing physical literacy in pre-school age were identified. The most commonly used instrument is the Test of Gross Motor Development by Ulrich. For the assessment of all four domains of physical literacy at preschool age, three tools were identified – Pre -PLAy, a set of tools based on the guidelines of Canadian Assessment of Physical Literacy, and the Nine-Step Assessment Approach based on Australian Physical Literacy Framework.
Conclusions. The content analysis led to the conclusion that there is a small number of unified universal tools that can be applied at preschool age and would include four domains of physical literacy. The research directions of physical literacy assessment tools at pre-school age are the following: development and validation of a universal tool or tool sets, application of smart technologies, virtual reality and remote assessment possibilities in the evaluation process.
Keywords: *physical literacy, physical competence, motor competence, assessment, preschool, early childhood education.*

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Introduction

The current research data on children's physical health and physical activity habits show that in 2019, only 18.8% of adolescents in Latvia were engaging in regular physical activities for one hour a day, but 22.8% of seven-year-old children are overweight (Latvijas Vēstnesis, 2022). The individual's internal motivation to engage in regular physical activity, follow healthy eating habits and reduce the sedentary lifestyle plays an important role in maintaining one's health. In this context, the research on physical literacy has become topical and is seen as a promising direction of how to promote healthy physical activity habits (Carl et al., 2023). Literacy as a concept is defined as an individual's ability or capacity to observe, understand and effectively interact with and respond to the environment within its context. Physical literacy forms the basis of an individual's participation in physical activities; it is an understanding of the value of physical activities and responsibility for engaging in them during the lifetime. The definition includes four interrelated, during-the-life-time changing, adaptive elements – efficiency, physical activity, cognitive ability, and behaviour (International Physical Literacy Association (IPLA), 2017). Physical literacy is not unique, it

is equivalent to other human skills such as reading and writing. Keeping in mind the individual's manifestations in the physical and material world, physical literacy is a fundamental competency in everyone's life (Durden-Myers, Bartle, Whitehead, & Dhillon, 2022).

Physical literacy is not limited to the performance of physical activities, it also encompasses the human interactions with the environment (Whitehead, 2010). The definition of physical literacy is trying to grasp the essence of a person's physical skills in its broader context; it is motivation, confidence, competence in physical activities, knowledge and understanding of physical activities and responsibility for involvement in them throughout the life span (Whitehead, 2019). The concept *physical literacy* is used in most English-speaking countries: in England, Australia, Canada, the USA, as well as in a large number of European countries – Austria, Belgium, the Czech Republic, Denmark, etc. In German research literature and policy documents, the concept *physical or motor competence* is predominantly employed. The available reviews and policy documents, published in English, do not identify any studies conducted in Latvia in the field of physical literacy (IPLA, 2017, Carl et al, 2023). In Latvian research studies, the concept *bodily awareness* is employed (Fernāte, 2008), while in national legislation and in the documents of the Latvian State Education Content Information Centre (VISIC) the concept *physical activity literacy* is used (Skola2030, 2019).

Studies show a clear correlation between health literacy and physical activity literacy – individuals with a physically active lifestyle have a higher level of health literacy (Buja et al., 2020). Although physical literacy is a lifelong process, it is important to start engaging in it already from early childhood (Gallahue, 2012, Buckler, 2019). The age up to eight years is a very important time for child's cognitive, social, emotional and physical development. At this stage of development, as a result of interaction between heredity, surrounding environment and practical experience, the plasticity of the brain and the response to change account for billions of integrated neural connections (UNICEF Data, 2022).

Development of any skill requires a point of reference – an initial skill level or a certain skill performance. This also applies to physical literacy, especially at pre-school stage when transition takes place from pre-school to primary school. The current situation shows that the Latvian educational content does not contain persistent and validated diagnostic assessment tools in the field of physical literacy (Skola2030, 2019). The study of Dynamic University, in which one of the chapters is devoted to the topicality of diagnostic criteria during the transition period from pre-school to primary school, Grade 1, reveals shortcomings in the Latvian national regulatory framework for the assessment of child's achievements (Dynamic University, 2020). There are no unified and standardized diagnostic tools in the content of compulsory education that determine the child's individual development and learning needs in pre-school. Therefore, common tools are needed to match the new learning content in order to identify the learning needs at the start of the Grade 1. The latest publications put forward the idea of a holistic, objective and transparent approach to assessing the dynamics of individual development (Jurs, 2022). To ensure the identification of physical literacy learning needs for pre-school children, in its first stage, it is necessary to review and analyse the physical literacy assessment tools performing systematic analysis of scientific literature.

Physical literacy assessment

Evaluating physical literacy is a challenging task. The diverse components – motivation, confidence, physical competence, knowledge and understanding are difficult to measure with one universal assessment tool (Edwards et al., 2018). The reviews of research directions in the field of children's physical literacy show a tendency to put the assessment in

the perspective of a holistic and non-linear developmental approach, considering not only basic physical or motor skills, but also motivation, confidence, knowledge and understanding. Such an approach would contribute to the promotion of the child's centred physical activity, taking into account child's interests and involvement in physical activity (Carl et al., 2023).

In the research on the assessment of physical literacy the contradictions can be observed between the philosophy of the concept, in which physical literacy is described and explained as a lifelong process, and the quality of the assessment, for which the validity and persistence of the instrument must be taken into account (Edwards et al., 2018, Durden-Myers, Bartle, Whitehead, & Dhillon, 2022). Physical literacy is a set of several elements, so one of the objectives is to consider and identify the most important elements that would indicate the level of literacy. For example, in Canada, various physical literacy assessment tools are developed such as *Passport for Life*, *Physical Literacy Assessment for Youth*, which take into account the child's individual performance, usually within the framework of physical skills. However, researchers are still looking for solutions trying to find a holistic evaluation model that reveals the essence of physical literacy and is appropriate in the field of physical education (Caldwell, 2020). Although motion skills are considered as the most important criterion for physical literacy, alternative forms of motion assessment, which reveal child's ability to perform a task in interaction with the environment, deviating from the usual movement pattern in standard conditions, must be considered (Hulteen et al., 2022). The context of this approach reveals the importance of assessing physical literacy as a set of motor skills, cognitive processes and environmental interactions. The surrounding environment is the contextual factor that determines the child's interests and the need for particular skills, and it should definitely be assessed in the context of physical literacy. From the above mentioned it can be concluded that a holistic approach for assessing physical literacy should include physical skills, motivation to perform the movements, understanding of the use of the movements, and they real application in everyday life.

There are various studies on the framework of physical literacy. In addition to the physical, sensory and perceptual, cognitive, psychological, and behavioural spheres, the contextual factor also must be considered – the dynamic environment in which the individual is functioning (Li et al, 2022). In systematic reviews on frameworks for assessing physical literacy, various groups of researchers have identified four dimensions: physical, affective (motivation and confidence), cognitive and participatory dimension (Edwards et al., 2018, Grauduszus et al., 2023). Thirty different elements of physical literacy are identified in the Australian Physical Literacy Framework (Australian Physical Literacy Framework (APLF), 2020), which are systematized into four basic domains – physical, psychological, social and cognitive. Thus, it can be assumed that it is necessary to evaluate mainly four different areas in order to get a full picture about an individual's level of physical literacy.

Therefore, as a result of this review, an assessment tool corresponding to each of the four areas will be identified. According to the Australian concept of physical literacy, the physical area includes all assessment tools that assess motor skills, coordination, stability, balance, agility, strength, muscular endurance, endurance of the cardiovascular system, reaction time and speed. The psychological assessment area may include tools that assess engagement, confidence, motivation, self-perception, awareness of emotions and self-regulation, physical self-regulation. The social sphere encompasses relationships, collaboration, ethics, society, and culture. The cognitive evaluation sphere can include all tools that assess knowledge content, safety and risk awareness, compliance, judgment, strategy and planning, tactics, perception awareness (APLF, 2020). Such a system of concepts can be used in cases where the study does not clearly describe to which sphere the evaluation tool is attributed.

In turn, the analysis of the child-centred evaluation process and the recommendations of teachers show that the assessment must be effective, convenient to use and practical. When engaging in the assessment process, the balance between the objective of the assessment and the ability to assess must be taken into account (Shearer, 2020, Goss, 2020). Factors characterizing the assessment, which determine the quality of the results of the study, indicate that the information and data collected during the assessment process must be repeatable and available to the participant and the person administering the data (Hay & Penney, 2013). The quality of the assessment tool is characterized by its persistence and validity. The persistence is explained by the stability of the test results if it is repeated more than once or if it is performed by more than one assessor. Validity determines the compliance of the measurement with the intended purpose (Cole et al., 1994). Therefore, the compliance of the instruments used in the assessment process with the criteria of standardized assessment tools should be clarified taking into account also the factor of convenience – testing time, necessary skills and equipment.

Methodology

The systematic literature review was conducted with the objective to identify a safe, persistent and easy-applicable physical literacy assessment tool for preschool children aged 3 to 7 years. In order to achieve this goal, the following research tasks were put forward: 1. To explore the application of the assessment tools described in scientific literature for assessing physical literacy in preschool children. 2. To explore which physical literacy components or domains are assessed and which components are assessed most often based on the definition of the concept. 3. To assess the validity, persistence and applicability of the physical literacy assessment tools used in the framework of the systematic literature review. The research questions raised in this study are the following: 1. Which are the most commonly used physical literacy assessment tools for preschool children? 2. To what extent these assessment tools embrace the physical literacy domains?

Search strategy: The systematic literature review model is adapted from the protocol registered in PROSPERO database, which corresponds to the scope and population of the selected report (Goss et al., 2017).

Selection procedure: This systematic literature review includes different research studies, publications, dissertations, published in databases in the period from 2018 to 2024. *Types of research to be included and reviewed:* both qualitative, quantitative and mixed research designs that use physical literacy assessment tools for preschool children. *Systematic review eligibility criteria by content*: 1. Population: research studies that involve healthy preschool children from 3 to 7 years of age. 2. In the description of the findings, a physical literacy or its domain assessment tool can be identified. 3. Research area: studies in which the research object is physical literacy and any of its domains: motor skills, affective factors (motivation, confidence), cognitive skills (movement competence, knowledge, understanding) and participation in physical activities. 4. *Search keywords*: physical literacy, physical competence, motor competence, assessment, assessment tools/ instruments, evaluation tools/ instruments, preschool, children, early childhood education.

In the first-round, the literature was searched from the electronic databases in the field of pedagogy, health and sports: EBSCO host (MEDLINE, Eric), Google Scholar, Science Direct, ERIH PLUS, Scopus, Web of Science. In the second or additional round, the literature from the sources gathered in the first round was selected by evaluating the compliance of the research content with the criteria of systematic literature review. In order to assess compliance with the topic and purpose of the systematic literature review, the title, summary and keywords of the publication were examined in the context of the inclusion criteria.

Description of the search methodology in the EBSCO host database: the first round of search was conducted using the terms and phrases and Boolean operators: Physical literacy AND assessment tools OR assessment method OR assessment AND preschool OR kindergarten OR early childhood. In the second round, the compliance of publications with the inclusion and exclusion criteria was assessed. The selected inclusion criteria determined that the publication is in English, the full text is available, the publication includes a physical literacy assessment tool that is applicable to healthy children from 3 to 7 years of age.

Exclusion criteria: 1) the publication contains the relevant keywords, but the content of the publication does not relate to physical literacy; 2) the methodological section of the publication does not describe the instrument and/or procedure for assessing physical literacy; 3) the assessment tools are not intended for assessing the physical literacy of preschool children; 4) the assessment tool was intended for children with special needs or developmental disabilities. The publication search was conducted from July 2023 to February 2024.

Data collection: 1) In the first round of data collection, two independent researchers were involved, the collected data were assessed against the eligibility and inclusion criteria. The compliance of the title and summary of the publication was assessed in relation to the population (preschool age children) and the topic (evaluation of the elements of physical literacy). After evaluating the suitability of the title, summary and keywords, all selected publications were compiled including information about the author, the year of publication, the country, the age of the research participants, the purpose of the study, and the assessment tools employed. 2) In the second phase of the compilation, the assessment tools identified in the in-depth analysis of sources were divided into domains – physical skills (competence and physical ability tests), psychological sphere or affective factors (motivation and confidence), cognitive skills (knowledge and understanding) and participation in physical activities. The suitability of the tool for the domain was evaluated considering the purpose of the study and the description of the research instrument in the given source. If no indications were found in the source of literature, then a match was sought based on the concepts included in the Australian Physical Literacy Framework (see Table 1) (APLF, 2019). In the next step of the content analysis of the systematic literature review, the following was clarified: the research tools used, the country in which the study was conducted and the assessment coverage of domains. For standardized evaluation tools, the author and the year of the test were mentioned. In cases where the methodology of the study had employed a collection of separate tests for the assessment of one specific area, it was defined as a *set of tools*, specifying the framework for assessment, for example, tests 'sit and reach', 'vertical leap', 'Y balance test'. Also a palm dynamometry was defined as a set of tools for assessing physical abilities and were attributed to the domain of physical skills (Sugimoto et al., 2023).

Table 1 ***Characteristics of the content of physical literacy domains***

Domain	Physical Skills/ Movement Competency (PS/MK)	Psycho-emotional/ Affective (PE/A) sphere	Cognitive domain (C)	Participation/ Social sphere (P/S)
Concepts characterizing domain	Motor skills, coordination, stability, balance, agility, strength, muscular endurance, cardiovascular endurance, reaction time and speed	Level of involvement, confidence, motivation, self-perception, awareness and self-regulation of emotions, self-regulation of physical activity.	Awareness of knowledge content, safety and risks, adherence to rules, judgment, strategy and planning, tactics, perception and awareness	Participation and cooperation in physical activities, amount of physical activity

If the instrument for assessing physical literacy was developed during the particular research study, then a reference to the authors of the publication was used in the authors' section. Based on the research methodology description, stated in the source analysed, the information on the validity, persistence and applicability of the research tool used for assessing physical literacy of children aged 3-7 years was noted.

Results

According to the selected search strategy and inclusion criteria, 345 literature sources were reviewed, 36 of which met the criteria included in the systematic literature review by title, key words and summary. 26 assessment tools used to assess physical literacy were identified. The tools were appropriate for evaluating one, two, three or four physical literacy domains for children aged 3 to 7 years. The results were summarized in a Table 2 , that included the assessment tool and its relevance to one or more domains. Information on the validity, persistence and applicability of the test referred to in the description of the publication methodology was noted.

From 26 different evaluation tools that were identified for assessing physical literacy of preschool children, the Test of Gross Motor Development (TGMD), authored by *Ulrich* (Webster & Ulrich, 2017b) is employed most often (Estevan et al., 2023; Eather et al., 2018; Buckler et al, 2023, O'Callaghan et al , 2024,. Caldwell et al , 2023, He et al, 2021, Carson, 2023, Wainwright et al., 2018, Gao Zan et al., 2018, Hwang et al., 2023). The test has a high persistence, it is validated for the assessment of motor skills in children aged 3 to 10 years. The test is easy to perform and can be completed in 20 minutes. In eight studies, the level of participation of children is measured by the objectively listed amount of physical activities. In research studies, the most commonly used method is recording the intensity and time of activities with an accelerometer, and most commonly accelerometer is carried on the hips (wGT3X-BT, ActiGraph, Pensacola, FL, USA). The methodological descriptions show the validity of this instrument and the persistence of the results for measuring the physical activity of preschool children (Caldwell et al., 2022, Schmutz et al, 2022, Gao Zan et al., 2018, Carson, 2023, Melby et al., 2021).

Table 2 ***Coverage of physical literacy assessment tools within two domains***

Reference to publication	Name of the tool	Author	Year	PS/ MK	PE/ A	C	P/ S	Validity	Persis-tence	Appli-cation
Estevan, (2023)	Perceived Movement Skill Competence (PMSC) – Spanish version	Barnett, Ridgers, Zask, & Salmon, 2015; Estevan, Molina-García, Abbott, et al., 2018	2018	x		x		x	x	
Essiet et al (2021), Zhang, et al (2022), Carson, (2023)	Movement Assessment Battery for Children-2 Checklist (MABC-2 Checklist)	Henderson, Sugden, & Barnett,	2007	x		x				
Schmutz et al (2022)	Zurich Neuromotor Assessment	Kakebeeke et al	2019	x		x		x		
Almeida et al (2023)	Accuracy of Perceived motor competence (PMC)	-	-	x		x				
Wainwright et al, (2018)	Leuven Early Age Child Engagement Scale	Leavers	1994		x		x			x

The summarised information revealed that the process of assessing physical literacy in most cases does not cover all four areas. Of the 26 different tools identified in the systematic review, 16 are used to evaluate one particular domain, of which 10 are used for assessing physical skills or movement competency. For the evaluation of two domains, five tools were identified (see Table 2), four of which are intended for the evaluation of physical skills and cognitive area – the Spanish version of the Perceived Movement Skill Competence (PMSC), the Movement Assessment Battery for Children-2, the Zurich Neuromotor Assessment and the Accuracy of Perceived Motor Competence (PMC). The information obtained in the descriptions of the research methodology shows that the validity and persistence have been confirmed for the Spanish version of the Perceived Movement Skill Competence (PMSC) test, while the Zurich Neuromotor Assessment test has been validated for use at preschool age. The Leuven Early Age Child Engagement Scale, designed to evaluate activity and participation domains, has been recognized as a convenient and easy applicable. Summarizing the domain coverage, it can be concluded that there is a possibility to use a combination of two tools for assessing physical literacy. This approach is already used in studies exploring physical literacy taking into account its broad framework (Whitehead, 2010, Wainwright et al., 2018).

Table 3 ***Three- and four-domain coverage of physical literacy assessment tools***

References	Name of the instrument	Author(s)	Year	PS/ MK	PE/ A	C	P/ S	Va-lidi -ty	Persis-tence	App lica-tion
Wainwright et al, (2018)	Pictorial Scale of Perceived Competence and Social Acceptance	Harter & Pike	1984	x		x	x			
Krenz et al. (2022)	6 point Likert scale	Krenz et al.	2022		x	x	x			
Gauduszus et al (2023) 2.Cairney et al (2018) 3. Carson, (2023)	The Preschool Physical Literacy Assessment Tool (Pre PLAy)	Cairney et al	2018	x	x	x	x	x	x	
Sugimoto et al., (2023)	Set of tools for assessing movement coordination and functions (Obstacle course; Overall function and coordination including lower and upper extremities; Upper extremity coordination: throwing a ball test; Lower extremity coordination: kicking a ball test; Upper extremity function with eye-hand, coordination: catching a ball test; Lower extremity coordination: kicking a ball test; Lower extremity unilateral, bilateral function and coordination: hop test	Sugimoto et al., based on Canadian Assessme nt of Physical Literacy (CAPL)	2023	x	x	x	x			
Barnett et al, (2019)	Guidelines for physical literacy assessment (9-step assessment concept)	Barnett et al	2019	x	x	x	x			

There were two instruments that covered three domains (see Table 3): the Pictorial Scale of Perceived Competence and Social Acceptance (Wainwright et al., 2018), which can be used to assess physical literacy, cognitive domain, and participation in preschool, and 6-point Likert Scale developed by Krenz et al (2022). No information on the validity and persistence of the instruments was mentioned in the description of the research methodologies. Three assessment tools were identified for assessing all physical literacy domains: Pre-PLAy (Cairney et al., 2018), a set of tools for assessing movement coordination and functions based on Canadian Assessment of Physical Literacy guidelines (Sugimoto et al, 2023), and physical literacy assessment guidelines using a nine-step algorithm (Barnett et al, 2019). The Pre-PLAy evaluation tool is currently being developed. Studies have found that this instrument shows high persistence in assessing the level of physical literacy in girls aged 18-49 months, but there are no sustained results about boys at this age. The toolkit (Sugimoto et al, 2023) and the assessment, based on the nine-step algorithm (Barnett et al, 2019), are rooted in the Canadian Assessment of Physical Literacy and the Australian Physical Literacy Framework. Thus, in the process of developing assessment tools, serious attention should be paid to the formation of the theoretical framework of physical literacy according to the region and the contextual factors in it.

Conclusions and Discussion

The results of the systematic literature review confirm that most often physical literacy is identified with physical skills or movement competency (Melby et al., 2021). The research results of the motor skills assessment of preschool children show that at this stage the experience of qualitative motor skills may be more important than the overall quantity or intensity of movements. This could mean that when perfecting the assessment tools for pre-school children, the diversity of movements should be taken into account – balance, movement, skills of mastering objects (Schmutz et al., 2020). Strength, endurance and coordination ratings confirm the correlation of results within the same domain (Krenz et al.,2022). Studies of the results on physical activity interventions of preschool children indicate an increase in the effectiveness of operational memory, manual dexterity, aiming and catching, as well as general motor competence. Thus, there is a possibility that there is a corelation between the effects of organized physical activity and cognitive ability levels of children (Zhang et al., 2022; Schmutz et al., 2020). However, in order to draw conclusions, an in-depth study should performed on the changes in the cognitive sphere including one of the characteristics stated in the APFL: the content of knowledge, awareness of safety and risks, compliance with rules, reasoning abilities, strategy and planning, tactics, perception awareness assessment (APLF, 2020). Several studies confirm that the domain of physical skills is only one of physical literacy components, therefore, if possible, other components of physical literacy for preschool children should also be assessed at the same time (Hwang et al., 2023, Esseiet, 2021).

Cognitive skills and affective domains in the context of physical literacy are assessed relatively less than physical skills and level of physical activity. This is consistent with the results of previous studies aimed at clarifying and analysing the use of physical literacy assessment tools (Edwards, 2018). This direction of assessing physical literacy should be explored in depth, taking into account its role in shaping attitudes and understanding. The affective domain in the field of child development characterizes the child's interest and motivation to participate. Frequently repeated and interesting physical movement patterns and skills at preschool age contribute to the formation of increasingly complex interest patterns and create the basis for specific motor skills (Gallahue, 2012). To determine the motivation and joy level of physical literacy, several groups of researchers have used the Likert scale

with emotions-reflecting drawings in five- and six-point rating systems (Carson, 2023, Krenz et al., 2022). These types of scales are successfully employed in paediatrics-related areas already from the age of 3 to determine the child's well-being (Carson, 2023). The experience of the researchers shows that such assessment method for children from 3 to 5 years of age can also be used when doing remote assessment during Zoom sessions (Carson, 2023). A similar approach to evaluation of motivation and engagement is provided when analysing the results of the Leuven Early Age Child Engagement Scale, in which the assessment is done by a specialist, not the child him/herself. (Wainwright, 2018). This could mean that the motivational domain can be assessed on the Likert scale rating from 1 to 5 using both the self-assessment principle and an external evaluation.

The amount of objectively measured physical activities covers the domain of participation as part of children's physical literacy. The most commonly used research method is recording the intensity of activities and the time spent doing them using accelerometer technologies. The amount of listed daily physical activities may not have a reliable correlation with the level of movement or motor competence at preschool age. Several studies have concluded that the diversity of physical activities is more important in pre-school age than the total amount of such activities (Melby et al., 2021). Looking at the long-term growth of a child's physical literacy, the acquisition of physical or motor skills and the diversity of physical activities play an important role in the formation of physically active lifestyle habits in middle childhood and adolescence (Schmutz et al., 2020, Melby et al., 2021). It can be concluded that accelerometery characterizes the domain of participation, but is not a universal method of assessing physical literacy in general.

A group of Spanish researchers brought up the contextual factor of the regions in a standardized evaluation test during the adaptation process. When adjusting any assessment tool, the proposed movement tasks and the experience of performing them should be taken into account in a particular country or region. For example, batting on a baseball, which is included in the Test of Gross Motor Development (Webster & Ulrich, 2017b), is not typical to sports and physical activity traditions of many European countries. Therefore, the choice of adaptation of this test for assessing physical literacy could affect its validity in some countries (Estevan et al., 2019). Some researchers recommend to combine physical literacy elements from existing scales or instruments after checking their validity and persistence indicators (Esseiet, 2021).

The results of the systematic literature review confirm that the number of universal assessment tools for all domains, which is related to physical literacy in preschool age, is very small – only three tools were identified from 26 instruments used. In some studies, the assessment tools for assessing physical literacy were elaborated by the groups of researchers, assessing both qualitative and quantitative aspects, for example, an obstacle course that assesses both time and quality of the performance. The development of assessment tools was based on the Canadian Assessment of Physical Literacy (CAPL), which includes the use of knowledge, motivation, everyday behaviour and physical competence (Sugimoto, 2023). This confirms that when designing a tool, consideration should be given to the possibility of integrating all four dimensions of physical literacy taking into account the age of the child. It reveals the further research directions in the field of physical literacy assessment at pre-school age – the interaction between the child's physical skills, motivating factors, daily habits and mechanisms of understanding the use of physical skills.

An interesting and new approach is the assessment of physical skills in a remote form as the result of COVID-19 pandemic, which created special problems when collecting children's data in person. The research results show that it is possible to assess basic movement skills remotely. However, it was also recognized that the assessment of specific elements requires additional training to ensure the reliability of the results, for example, in the

process of assessing a vertical jump (Hwang et al., 2023). The use of virtual environment is reflected in a study conducted in 2023 that describes the use of the Flanker test as virtual environment-based evaluation tool. The researchers admit that in the initial phase, the test has high costs and is available only in the laboratory conditions, and it is necessary to engage a broader group of participants and to conduct more studies in order introduce the test for a practical use (O'Callaghan, et al., 2024). Overall, it can be concluded that publications in English describe a small number of physical literacy assessment tools, which include four assessment domains and are applicable to preschool age. Taking into account the multidimensional framework of physical literacy, the future research should pay attention to the aspects characterizing the physical literacy of pre-school children, the evaluation experience and needs of the pre-school teachers and specialists in compliance with the needs of the country in which the study is conducted.

References

The Australian Physical Literacy Framework. (2019). *Sport Australia* Retrieved from https://www.pescholar.com/wp-content/uploads/2019/08/The-Australian-Physical-Literacy-Framework.pdf

Bánfai-Csonka, H., Betlehem, J., Deutsch, K., Derzsi-Horváth, M., Bánfai, B., Finánczc, J., Podráczky, J., & Csima, M. (2022). Health Literacy in Early Childhood: A Systematic Review of Empirical studies. *Children*, *9*(8), 1131. DOI: https://doi.org/10.3390/children9081131

Buja, A., Rabensteiner, A., Sperotto, M., Grotto, G., Bertoncello, C., Cocchio, S.,Baldovin T., Contu, P., Lorini, C., & Baldo, V. (2020). Health Literacy and Physical Activity: A Systematic review. *Journal of Physical Activity & Health*, *17*(12), 1259–1274. DOI: https://doi.org/10.1123/jpah.2020-0161

Cairney, J., Clark, H. J., James, M. E., Mitchell, D., Dudley, D., & Kriellaars, D. (2018). The Preschool Physical Literacy Assessment Tool: Testing a new physical literacy tool for the early years. *Frontiers in Pediatrics*, *6*. DOI: https://doi.org/10.3389/fped.2018.00138

Catl, J., Bryant, A., Edwards, L. C., Bartle, G., Birch, J. E., Christodoulides, E., Emeljanovas, A., Fröberg, A., Gandrieau, J., Gilić, B., Van Hilvoorde, I., Holler, P., Iconomescu, T. M., Jaunig, J., Laudańska–Krzemińska, I., Lundvall, S., De Martelaer, K., Martins, J., Miežienė, B., . . . Elsborg, P. (2023). Physical literacy in Europe: The current state of implementation in research, practice, and policy. *Journal of Exercise Science and Fitness*, *21*(1), 165–176. DOI: https://doi.org/10.1016/j.jesf.2022.12.003

Cochran, M. (2011). International Perspectives on Early Childhood Education. Educational Policy, 25(1), 65-91. DOI: https://doi.org/10.1177/0895904810387789

Caldwell, A.T., Wilson, A., Mitchell, D., Brian W. Timmons, W.B, (2020). *Development of the Physical Literacy Environmental Assessment (PLEA) tool.* DOI: https://doi.org/10.1371/journal.pone.0230447

Cole, B., Finch, E., Gowland, C., Mayo, N. (1994). *Physical Rehabilitation Outcome Mesures*. Canadian Physiscal Therapy Association, Ontario.

Dynamic University, Liepājas Universitāte. (2020). *Priekšnosacījumi sekmīgai pārejai no pirmsskolas izglītības uz sākumskolas izglītību, tostarp iekļaujošās izglītības principu īstenošanai*. Latvijas Republikas Izglītības un zinātnes ministrija. Rīga. Latvija. Retrieved from https://www.izm.gov.lv/lv/media/11465/download

Eather, N., Bull, A., Young, M. D., Barnes, A. T., Pollock, E. R., & Morgan, P. J. (2018). Fundamental movement skills: Where do girls fall short? A novel investigation of object-control skill execution in primary-school aged girls. *Preventive Medicine Reports*, *11*, 191–195. DOI: https://doi.org/10.1016/j.pmedr.2018.06.005

Edwards, L. C., Bryant, A., Keegan, R., Morgan, K., Cooper, S., & Jones, A. (2018). 'Measuring' Physical Literacy and Related Constructs: A Systematic review of empirical findings. *Sports Medicine*, *48*(3), 659–682. DOI: https://doi.org/10.1007/s40279-017-0817-9

Essiet, I. A., Lander, N., Salmon, J., Duncan, M., Eyre, E., Ma, J., & Barnett, L. M. (2021). A systematic review of tools designed for teacher proxy-report of children's physical literacy or constituting elements. *International Journal of Behavioral Nutrition and Physical Activity*, *18*(1). DOI: https://doi.org/10.1186/s12966-021-01162-3

Estevan, I., Molina-García, J., Queralt, A., Bowe, S. J., Abbott, G., & Barnett, L. M. (2019). The new version of the pictorial scale of Perceived Movement Skill Competence in Spanish children: Evidence of validity and reliability. *Revista Internacional De Ciencias Del Deporte*, *15*(55), 35–54. DOI: https://doi.org/10.5232/ricyde2019.05503

Fernāte, A. (2008). *Transdisciplināra pieeja ķermeniskās izpratības izpētē*. [Doctoral dissertation, University of Latvia]. DSpace, Repository of the University of Latvia. Retrieved from https://dspace.lu.lv/dspace/bitstream/handle/7/5023/9314-Andra_Fern%c4%81te_2008.pdf?sequence=1&isAllowed=y

Goss H., Shearer C., Foweather L., Myers E., Knowles Z., & Boddy K. (2017). *Systematic review of existing measures used to assess the elements of physical literacy in primary school children aged 3-7 years old*. Retrieved from from https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42017061010

Goss, H. (2020). *Physical literacy assessment amongst young children*. DOI: https://doi.org/10.24377/ljmu.t.00012771

Hulteen, R. M., Terlizzi, B. M., Abrams, T. C., Sacko, R. S., De Meester, A., Pesce, C., & Stodden, D. F. (2022). Reinvest to assess: Advancing Approaches to motor competence measurement across the lifespan. *Sports Medicine*, *53*(1), 33-50. DOI: https://doi.org/10.1007/s40279-022-01750-8

Hwang, Y., Predy, M., Naylor, P., Rhodes, R. E., Liu, S., Moldenhauer, R., Li, J., Wright, C., Buckler, E. J., & Carson, V. (2023). Piloting the virtual PLAYShop program: a Parent- Focused Physical Literacy Intervention for early childhood. *Children (Basel)*, *10*(4), 720. DOI: https://doi.org/10.3390/children10040720

Hwang, Y., Boyd, M., Naylor, P. J., Rhodes, R. E., Liu, S., Moldenhauer, R., Li, J., Wright, C., Buckler, E. J., & Carson, V. (2023). Piloting the Virtual PLAYshop Program: A Parent-Focused Physical Literacy Intervention for Early Childhood. *Children (Basel, Switzerland)*, *10*(4), 720. DOI: https://doi.org/10.3390/children10040720

International Physical Literacy Association. (2017). *Consensus Statement—Physical Literacy*. Retrieved from https://www.physical-literacy.org.uk/

Jurs P. (2022). Diagnostikas kritēriju aktualitāte pārejas posmā no pirmsskolas uz sākumskolas 1.klasi. *Pedagoģija: teorija un prakse. XI Izglītības kvalitātes dimensijas zināšanu sabiedrībā: zinātnisko rakstu krājums*. 15-25 Liepājas Universitāte. DOI: 10.37384/PTP.2022.11.026

Krenz, L, Grauduszus, M, Klaudius, M, Stolz, I, Wessely, S, & Joisten, C. (2022). Development of a German Physical Literacy Assessment for Children in the Context of Health Promotion—An Explorative Approach. *Children*, *9*(12), 1908. DOI: https://doi.org/10.3390/children9121908

Ministru Kabinets (2018). *Noteikumi Nr. 716 "Noteikumi par valsts pirmsskolas izglītības vadlīnijām un pirmsskolas izglītības programmu paraugiem*".

Mulé, D., Jeger, I., Dötsch, J., Breido, F., Ferrari, N., & Joisten, C. (2022). Correlation between Language Development and Motor Skills, Physical Activity, and Leisure Time Behaviour in Preschool-Aged Children. *Children*, *9*(3), 431. DOI: https://doi.org/10.3390/children9030431

Melby, P. S., Elsborg, P., Nielsen, G. L., Lima, R. A., Bentsen, P., & Andersen, L. B. (2021). Exploring the importance of diversified physical activities in early childhood for later motor competence and physical activity level: a seven-year longitudinal study. *BMC Public Health*, *21*(1). DOI: https://doi.org/10.1186/s12889-021-11343-1

O'Callaghan, L., Foweather, L., Crotti, M., Opicci, L., Pesce, C., Boddy, L. M., Davies, K. F., & Rudd, J. (2024). Associations of physical activity dose and movement quality with executive functions in socioeconomically disadvantaged children aged 5–6 years. *Psychology of Sport and Exercise*,*70*, 102546. DOI: https://doi.org/10.1016/j.psychsport.2023.102546

Poitras, V. J., Gray, C., Borghese, M. M., Carson, V., Chaput, J., Janssen, I., Katzmarzyk, P.T., Pate, R. R., Gorber, S. C., Kho, M. E., Sampson, M., & Tremblay, M. S. (2016). Systematic review of the relationships between objectively measured physical activity and health indicators in school-aged children and youth. *Applied Physiology, Nutrition and Metabolism/Applied Physiology, Nutrition, and Metabolism*, *41*(6 (Suppl. 3)), S197–S239. DOI https://doi.org/10.1139/apnm-2015-0663

Shearer, C. (2020). *Physical literacy assessment among primary school children aged 7-11 years*. DOI: https://doi.org/10.24377/ljmu.t.00013081

Sugimoto, D., Stracciolini, A., Berbert, L., Nohelty, E., Kobelski, G., Parmeter, B., Weller, E., Faigenbaum, A. D., & Myer, G. D. (2023). Assessment of Physical Tests in 6–11 Years Old Children: Findings from the Play Lifestyle and Activity in Youth (PLAY) Study. *International Journal of Environmental Research and Public Health/International Journal of Environmental Research and Public Health*, *20*(3), 2552. DOI: https://doi.org/10.3390/ijerph20032552

UNICEF Data. (2022*). Early childhood development*. Retrieved from: https://data.unicef.org/topic/early-childhood-development/overview/

Webster, E. K., & Ulrich, D. A. (2017b). Evaluation of the Psychometric Properties of the Test of Gross Motor Development—Third Edition. *Journal of Motor Learning and Development*, *5*(1), 45–58. DOI: https://doi.org/10.1123/jmld.2016-0003

Whitehead, M. (2010). *Physical literacy*. DOI: https://doi.org/10.4324/9780203881903

Zhang, J., Shen, Q., Wang, D., Hou, J., Tong, X., Qiu, S., Wang, X., Zhou, S., Yang, W., Heng, S., Lu, C., Cui, L., & Yin, H. (2022). Physical activity intervention promotes working memory and motor competence in preschool children. *Frontiers in Public Health, 10*. DOI: https://doi.org/10.3389/fpubh.2022.984887

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PUPILS' WRITTEN LANGUAGE IN THE LATVIAN LANGUAGE AND HISTORY STATE EXAMINATIONS IN LATGALE IN 2021

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Abstract. *The research aims to examine pupils' text creation skills in the Latvian language and history state examinations (CE). The source of the research is the examination papers of pupils in Latgale in 2021: Latvian language CE (a substantiated opinion; 250 words) and history CE (task 3 of part 3 – an essay; 200 words). Evaluation criteria of both examinations show that the quality of spelling is considered more important in the Latvian language examination (10 points out of 34 (approx. 30%) can be obtained for orthography and punctuation).*

The article summarises the main types and number of errors in morphology and syntax in both exams. In morphology, several types of errors are distinguished: unmotivated use or absence of long characters, misspelling of consonants, errors in the spelling and hyphenation of words, misspelling of proper names, misspelling of verbs and foreign words. The number of errors in pupils' work was also determined for several syntactic constructions: coordinated parts of sentence, coordinated parts of sentence with a generalising word, participial clauses, insertions, and explanatory word groups. The number of punctuation errors in sentences, separating the parts of a compound sentence and a complex sentence, and unmotivated uses of punctuation were also investigated.

Comparing the quality of students' written language in Latvian and history, it can be concluded that the quality of writing in both exams remains similar for the same student. There are pupils with no orthographic and punctuation errors in both examinations. Some students have some spelling and punctuation errors in both examinations. Some pupils have many spelling and punctuation errors in both examinations. This result is an indication that students follow spelling and punctuation norms according to their knowledge, skills, and writing culture. The study does not support the hypothesis that in the writing part of exams in subjects other than the Latvian language, pupils' knowledge is weaker and a more negligent attitude towards writing culture would be observed.

Keywords*: examinations, Latvian language, orthography, syntax, text.*

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Introduction

At the end of Grade 12, pupils must pass a Latvian language exam, including text-formation, i.e. they must be able to compose a text "in accordance with the author's communicative purpose and the requirements of the functional style and speech genre" (VPSV, 2007, 393), using cultural or literary facts as the basis. The centralised Latvian language examination papers have been analysed several times (VISC, 2007; VISC, 2012; VISC, 2015; VISC, 2020), focusing not only on the text analysis and basic language skills part but also on the quality of the substantiated opinion. The ability to form "a wide variety of sentences and structural and modal constructions" (Kvašīte, 2013, 190) in written language is linked to the ability to follow orthographic and punctuation norms. In our society, it is a well-established opinion that pupils abide by orthography and punctuation norms in the Latvian language exam papers, but they observe orthography and punctuation norms less in exam papers of other subjects – history, geography, or economics. The authors of the study will try to test this hypothesis. The study "Pupils Written Language in the Latvian Language and History State Examinations in Latgale in 2021" is part of a larger study on the quality of pupils' written language in the Latvian language and history examinations in Latvia. It is carried out to discover whether pupils pay more attention to spelling and punctuation when writing a centralised Latvian language exam paper than a history exam paper.

The study aims to investigate Latvian language proficiency in text production in the centralised Latvian language and history examinations. An empirical research method was used in the work. The relevance of the study stems from the outcomes of the Secondary Education Standard: the pupil is able to choose the most appropriate and accurate orthographic, grammatical, and punctuation devices to produce an influential text, as well as to follow the spelling norms of literary language in all subjects (Standarts, 2020). If pupils have mastered the requirements set out in the Standard, the text production in the centralised examination in Latvian language and history should be of good quality.

Literature review

The research uses the opinions of language didactics theory on language competence (Celce-Murcia & Olshtain, 2000; Daszkiewicz, Wenzel & Kusiak-Pisowacka, 2019, Martena, Laiveniece & Šalme, 2022), studies on Latvian pupils' linguistic competence (Gavriļina & Špūle, 2018; Anspoka & Martena, 2021), and research results in other regions of Latvia (Straupeniece & Dzintars, 2023a, Straupeniece & Dzintars, 2023b).

The substantiated opinion is a part of the primary and secondary school Latvian language exams. Researchers have also previously focused on pupils' reflective texts. Margarita Gavriļina and Kaspars Špūle's study "Latvijas skolēnu valodas (gramatiskās) kompetences analīze" (*Analysis of Latvian pupils' language (grammatical) competence*) (2018) analyses the state examination papers of 6th and 9th grade pupils (2013–2016), i.e. the diagnostic test in the 6th grade and the examination paper in the 9th grade in Latvian and Russian, focusing on pupils' ability to perform different types of language competence tasks and their ability to argue. Both 6th-grade essays (150 words) and 9th-grade exam substantiated opinions (250–300 words) have been studied. Although the 6th-grade papers were assessed only on the orthographic and punctuation norms learnt, as both researchers point out, the most frequent scores for students in orthography and punctuation were 0 (6 orthographic errors – 0 points, 8 punctuation errors – 0 points). On average, ninth-graders scored 40% in orthography and 25% in punctuation (Gavriļina & Špūle, 2018, 5). The authors conclude that Russian-speaking pupils have fewer punctuation errors than Latvian pupils and stress that a Russian-speaking pupil learns punctuation twice in both Russian and Latvian lessons. When leaving primary school, pupils should be able to write words orthographically correctly and use punctuation according to the punctuation rules (Martena, Laiveniece & Šalme, 2022, 84), but the results do not confirm that.

Zenta Anspoka's and Sanita Martena's methodological aid, "Latviešu valodas lietpratība un tās pilnveides iespējas vidusskolā" (Latvian Language Literacy and Its Improvement Opportunities in Secondary School, 2021) analyses 409 examination papers from different regions of Latvia (Kurzeme, Latgale, Riga) and school education programmes. According to the researchers, the division by educational programme (secondary schools with Latvian as the official language, minority secondary schools, and state grammar schools) does not reveal the real situation, as secondary schools and state grammar schools with Latvian as the official language also enrol pupils for whom Latvian is not their mother tongue. The study describes not only the spelling of words and word forms and punctuation norms but also the pupils' ability to compose a text according to the topic, their ability to use arguments and facts, their vocabulary and the language style of the text. The authors identify eight common punctuation errors: incorrect use of punctuation, separating parts of compound sentences and complex sentences, participial clauses, coordinated parts of sentence, similes, insertions, explanatory word groups, and end-of-sentence punctuation (Anspoka & Martena, 2021, 38). It is also concluded here that there are fewer punctuation errors (by 9%) in the work of minority secondary school pupils compared to Latvian schools and grammar schools because foreigners

use simple syntactic language devices (Anspoka & Martena, 2021, 44). Everyone has the opportunity to choose the syntactic language tools that help to avoid punctuation errors.

In 2023, the study of pupils' exam papers continues, and the 2021 Latvian language and history exam papers of pupils in Kurzeme and Riga have been studied. The researchers, Daiga Straupeniece and Normunds Dzintars point out similar types of errors in orthography and punctuation, which Anspoka and Martena have already highlighted. The studies do not observe a large difference in the number of errors in one pupil's essays in both examinations nor do they observe pupils' caution in using "more complex syntactic constructions" (Straupeniece & Dzintars, 2023a, 70) in the exam papers.

The study is being continued to obtain data on the proportions of spelling and punctuation errors among pupils in all regions of Latvia.

Methodology

The article analyses 15 randomly selected works of pupils in Latgale in the 2021 exam session. For the comparison to be correct, the quality of the written language was examined in both examination papers of one pupil – the Latvian language and history. The study is based on 30 papers (15 text-creation papers in Latvian and 15 in history). CE in Latvian is mandatory, and CE in history is optional; therefore, only the works of pupils who took the history exam were selected. It is impossible to obtain accurate data about the schools and the pupils whose papers were randomly selected, as all exam papers are coded.

The source of the research is the 2021 CE in Latvian (substantiated opinion; 250 words) and the CE in history (Part 3, Task 3 – an essay; 200 words). At first, the evaluation criteria of Latvian language and history CE papers were compared in order to find out what is common and what is different in evaluating the pupils' performance. After the examination of the evaluation criteria for part 3 of the Latvian language CE (Latviešu valoda, 2021), it can be concluded that pupils can receive a total of 34 points: for content (10 points), composition (7 points), language use (3 points), style (3 points), spelling and punctuation errors (10 points). The errors are added together in the evaluation criterion of spelling and punctuation errors (see Table 1).

Table 1 ***A fragment of evaluation criteria in the Latvian language CE***

Points	0	1	2	3	4	5	6	7	8	9	10
Errors in punct., spelling	19 or more errors	17–18	15–16	13–14	11–12	9–10	7–8	5–6	3–4	2	1

The examination of the history exam evaluation criteria shows that pupils can receive a total of 12 points: for content (3 points), theory (3 points), facts (3 points), and concepts (3 points). Spelling and punctuation errors are not regarded separately, they are included in the content section (Vēsture, 2021). The criteria for spelling in the history examination are presented in a descriptive form (see Table 3): spelling rules are followed (3 points), spelling rules are followed, but there are some errors caused by inattentiveness (2 points), many spelling errors (1 point), spelling errors do not allow understanding the content (0 points).

Table 2 ***A fragment of evaluation criteria in the history CE***

Points	Content structure, logical sequence, content's adequacy to the topic
3	The content is adequate for the selected topic. The content is structured: the text has an introduction, discussion and conclusions. The conclusions are derived from the text. Spelling rules are followed.
2	The content is adequate for the selected topic. The content is presented sequentially, but some parts are carelessly developed: the introductory part is imprecise, the conclusions are superficial and non-specific. Spelling rules are followed, but there are some careless mistakes.
1	The content is adequate for an aspect of the chosen topic. The content is presented chaotically, the opinion is not justified – the text retells historical facts. Many spelling mistakes, but the meaning of the text is understandable. The text is too general and vague.
0	The content matches the topic. Spelling errors make it difficult to understand the content. The principles of tolerance have been violated.

The description of the criteria shows that in history, spelling errors have not been divided into error types, as is the case in the Latvian language examination, where points are awarded based on the number of spelling and punctuation errors. It can be concluded that, in the Latvian language examination, more attention is paid to the quality of spelling, while in the history exam, the quality of spelling is expressed in terms of "some mistakes", "many mistakes"

The study analysed pupils' performance in the centralised Latvian language and history examination in grade 12, assessing orthographic and punctuation errors and their numbers. The main types of errors in both exams were summarised and compared. In orthography, the focus was on six types of errors: unmotivated use or absence of long characters, errors in the spelling of proper names, errors in spelling words separately or together, errors in the spelling of consonants, errors in the suffix or ending of verbs, errors in the spelling of foreign words. In punctuation, attention was also paid to the main types of errors: errors in separating coordinated parts of a sentence and coordinated parts of a sentence with a generalising word, errors in separating a subordinate clause, participial clause, an insertion, parts of a compound sentence, and in unmotivated use of punctuation.

Results and Discussion

A written text is a logically structured, conceptually connected set of statements (VPSV 2007), therefore writing is one of the most difficult linguistic activities to learn, as it combines several aspects – content, text type, style, spelling (Martena, Laiveniece, Šalme 2022). Writing a text is an individual process, but the ability to choose and use diverse language means, morphological, lexical and syntactic, according to the norms of oral and written language, is one of the signs of language competence (Daszkiewicz, Wenzel, & Kusiak-Pisowacka, 2019). Linguistic competence involves knowledge of the language system, including lexicon, phonology, morphology, and syntax, and the ability to use them qualitatively. An individual's attitude towards language is revealed not only by his social status, level of education, character traits, and attitude towards other people but also by the ability to express and defend their opinion and the ability to influence the opinion of others. Although it cannot be directly observed, it can be inferred from an individual's speech behaviour, speech etiquette, and level of linguistic upbringing (Celce-Murcia & Olshtain, 2000; Daszkiewicz, Wenzel, & Kusiak-Pisowacka, 2019).

In the process of researching language competence, it is important to pay attention to the ability to produce a text following the norms of orthography and punctuation. The ability to observe orthography and punctuation norms in the text is closely related to pupils' knowledge,

skills and language culture. It can be used to judge the ability of young people to analyse, describe, reason, and express their thoughts, opinions, and attitudes towards cultural, literary or historical facts while writing essays in the Latvian language and history examinations. A total of 437 errors (orthography – 62%, punctuation – 38%) were found in both exam papers of 15 students in Latgale.

A very high number of errors was found in orthography: 269 orthographic errors (see Table 3) – 114 errors or 42% in the Latvian language exam, 155 errors or 58% in the history exam. Thus, the majority of errors are in the history exam.

Table 3 ***Number of orthographic errors in Latvian and history examinations***

Error types	Pupils/ subject	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	**Total**
A	Latvian										1		20	2	17	50	**90**
	History	1	1				2		1		1		41	24	14	35	**120**
B	Latvian	1		1										1			**3**
	History	1									3		3		2	6	**15**
C	Latvian								1			1					**2**
	History								2	1					1		**4**
D	Latvian			1	1				2				3			4	**11**
	History								2	1	2		2	1		2	**10**
E	Latvian	1		1	1				1				2				**6**
	History															2	**2**
F	Latvian																
	History												2	2			**4**
Total	**Latvian**	**2**		**3**	**2**				**3**		**1**	**1**	**28**	**3**	**17**	**54**	**114**
Total	**History**	**2**	**1**				**2**		**5**	**2**	**6**		**48**	**27**	**17**	**45**	**155**

A – unmotivated use or absence of long characters
B – errors in spelling proper names
C – errors in spelling words separately or together
D – errors in spelling consonants
E – errors in spelling suffixes and endings of verbs
F – errors in spelling foreign words

In Latgale, only two pupils (No. 5 and 7), i.e. 13% did not have a single orthographic error, while in a similar study in Kurzeme, it was 5 pupils (Straupeniece & Dzintars, 2023a, 64), in Riga, 4 pupils (Straupeniece & Dzintars, 2023b, 636). Five pupils (No. 2, 4, 6, 9, 11), i.e. 33%, had 1–2 errors. Several pupils' papers did not contain specific error types, e.g. 6 pupils did not have error type A, 5 students – error type B, 11 students – error type C, 7 students – error type D, 9 students – error type E, 13 students – error type F. In both exams, 5 pupils (No. 10, 12, 13, 14, 15) made type A errors, 1 pupil (No. 1) made type B errors, 1 pupil (No. 8) made type C errors, 3 pupils (No. 8, 12, 15) made type D errors. In both examinations, error types E and F were not present in the work of any pupil.

Although most pupils' work contains one or two errors of the same type, the study found that some pupils have a very high number of spelling errors. Orthographic errors are most common in the essays of pupils whose mother tongue is Russian, as shown by the number of Type A errors – unmotivated use or absence of long characters. The highest number of errors in spelling words was found in 4 pupils' works: No. 15 (99 errors: 54 in Latvian, 45 in history), No. 12 (76 errors: 28 in Latvian, 48 in history), No. 14 (34 errors: 17 in Latvian, 17 in history), and No. 13 (30 errors: 3 in Latvian, 27 in history). These pupils have many errors in both the Latvian language substantiated opinion and the history essay.

The prevalence of orthographic errors in the history exam cannot be assessed unequivocally. Examination of the ratio of errors in both exams shows that only one pupil's (pupil No. 13) work differs significantly in the unmotivated use or absence of long characters (type A errors) in both exams: 2 errors in the Latvian language exam, 24 errors in the history exam. This case may indicate a pre-prepared substantiated opinion paper.

A comparison of the data from Kurzeme, Riga and Latgale (see Table 4) reveals that the Latgale region has more orthographic errors in pupils' works in both the Latvian language and history examinations. The high number of errors in Latgale is due to the work of some pupils whose Latvian language skills are very low.

Table 4 ***Number of orthographic errors in Latvian and history examinations in different regions***

Subject / regions	Latgale	Kurzeme	Riga
Latvian language CE	114	41	25
History CE	155	18	36
Total	**269**	**59**	**61**

These results mean that different support materials are needed to help pupils with a native language other than Latvian, to differentiate between short and long vowel spellings, and to promote the development of these skills.

There are fewer punctuation errors in pupils' examination papers. In total, 168 punctuation errors were found in both exams (see Table 4): 99 errors or 59% in the Latvian language exam, 69 errors or 41% in the history exam. The highest number of errors was made in the Latvian language exam.

Table 5 ***Number of punctuation errors in Latvian and history examinations***

Error types	Pupils/ subject	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	**Total**
G	Latvian	1		2					1				2	1	2		**9**
	History												2			1	**3**
H	Latvian									1	1						**2**
	History								1					1			**2**
I	Latvian			2	4			3	3	3			4	2	10	4	**35**
	History				1				2	1			5		4	2	**15**
J	Latvian		2	6	2				2			1		1	2		**16**
	History			1	2				1			2			1		**7**
K	Latvian				1										2		**3**
	History				1							1	2			2	**6**
L	Latvian					1		1	2	1		1	2		2		**10**
	History		1			1			1					1			**4**
M	Latvian	1	1					1	5	1	7	1	4	1		2	**24**
	History		2	1	2			1	1	1	16		5		1	2	**32**
Total	**Latvian**	**2**	**3**	**10**	**7**	**1**		**5**	**13**	**6**	**8**	**3**	**12**	**5**	**18**	**6**	**99**
Total	**History**		**3**	**2**	**6**	**1**		**1**	**6**	**2**	**16**	**3**	**14**	**2**	**6**	**7**	**69**

G – errors in separating coordinated parts of sentence
H – errors in separating coordinated parts of sentence with a generalising word
I – errors in separating a subordinate clause
J – errors in separating a participial clause
K – errors in separating an insertion
L – errors in separating parts of a compound sentence
M – unmotivated use of punctuation

Only one pupil (No. 6), i.e. 7%, has no punctuation errors, and two pupils (No. 1, 5), i.e. 13%, have 2 errors. Several pupils' works did not contain specific types of errors. This is not necessarily related to knowledge of the use of specific constructions. On the contrary, it has been observed that pupils do not use a variety of syntactic language devices in their examination papers (Straupeniece & Dzintars, 2023a, 70; Straupeniece & Dzintars, 2023b, 643). Some pupils have a very high number of punctuation errors. The highest number of punctuation errors was found in 4 pupils' papers: pupil No. 8 (19 errors: 13 in Latvian, 6 in history), pupil No. 10 (24 errors: 8 in Latvian, 16 in history), pupil No. 12 (26 errors: 12 in Latvian, 14 in history), pupil No. 14 (24 errors: 18 in Latvian, 6 in history).

A comparison of the 2021 data from Kurzeme, Riga, and Latgale (see Table 6) shows that the pupils from Latgale had more punctuation errors in both the Latvian language and history examinations.

Table 6 ***Number of punctuation errors in Latvian and history CE in different regions***

Subject / regions	Latgale	Kurzeme	Riga
Latvian language CE	99	49	61
History CE	69	38	49
Total	**168**	**87**	**110**

A higher number of punctuation errors in the Latvian language examination was found not only in Latgale (30%), but also in Kurzeme (22%), and Riga (24%). It means that there are more punctuation errors in the Latvian language exam than in the history exam.

One of the most commonly used syntactic constructions is coordinated parts of sentence. The investigation of the 2021 Latgale exam papers shows that pupils made mistakes in 7% of cases when separating coordinated parts of sentence. In Kurzeme and Riga, 8 cases were found (4 in Latvian, 4 in history) (Straupeniece & Dzintars, 2023a, 65; Straupeniece & Dzintars, 2023b, 638). In the 2018 essays, pupils made few mistakes when separating coordinated parts of sentence or parts of a sentence, i.e. 3% on average (Anspoka & Martena, 2021, 41).

A participial clause is a common syntactic construction in exam essays. In 2021 Latgalian pupils' papers, participial clauses not separated by comma were observed in 14% of cases (in Latvian, the number of errors is almost twice as high). In Kurzeme, it was 18% of cases, and the number of errors was similar in both examinations, the Latvian language and history. (Straupeniece & Dzintars, 2023a, 66). The study of the 2018 pupils' essays found that punctuation marks were not used or misused in 45% of cases when separating a participial clause (Anspoka & Martena, 2021, 42).

The study on secondary school pupils' ability to follow punctuation rules shows both a lack of knowledge and a lax attitude towards writing culture.

Conclusions

Latgalian pupils' works in the Latvian language and history state examinations have common features with and different features from pupils' works in other regions of the country. On the one hand, there is an increase in the number of orthographic and punctuation errors in Latgale pupils' exam papers. On the other hand, there is a trend: if a pupil knows the rules of grammar, he/she follows the rules of orthography and punctuation in both the Latvian language and history exams, and vice versa. The highest number of errors is found in the works of some pupils whose mother tongue is not Latvian.

The hypothesis that students have poorer writing skills in the history examination was not confirmed. However, an analysis of the language material suggests that some pupils have deficient levels of language competence in both Latvian and history CE.

At the end of secondary school, the most frequent errors in pupils' work in Latgale were in the use of long characters (many unmotivated long macrons or the lack of them) and the spelling of consonants. Also, there are many unmotivated punctuation errors, errors in separating the subordinate clause and the participial clause. Similarly to other regions, in Latgale, pupils' exam papers contain uniform syntactic linguistic features.

The analysis of the 2021 CE papers shows that the level of language competence of Latgale pupils is low, with a large majority of young people not having a high level of Latvian language proficiency.

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References

Anspoka, Z. & Martena, S. (2021). *Latviešu valodas lietpratība un tās pilnveides iespējas vidusskolā*. *Metodisks līdzeklis skolotājiem, mācību līdzekļu autoriem un vērtētājiem* [*Latvian Language Proficiency and Opportunities for Its Improvement in Secondary School. A Methodological Tool for Teachers, Teaching Aid Authors and Evaluators*]. Liepāja: LiePA.

Celce-Murcia, M. & Olshtain, E. (2000). *Discourse and Context in Language Teaching*. Cambridge: Cambridge University Press.

Daszkiewicz, M., Wenzel, R. & Kusiak-Pisowacka, M. (2019). *Education Role of Language Skills*. Gdansk: University of Gdansk.

Gavriļina, M. & Špūle, K. (2018). Latvijas skolēnu valodas (gramatiskās) kompetences analīze. Izglītība zinātnei un praksei: *LU Pedagoģijas, psiholoģijas un mākslas fakultātes Skolotāju izglītības nodaļas rakstu krājums*. Rīga: UL Academic Publishing House, p. 17–25. Retrieved from: https://www.apgads.lu.lv/fileadmin/user_upload/lu_portal/apgads/PDF/Izglitiba-zinatnei0un-praksei/02_Gavrilina_Spule-IZP.pdf

Kvašīte, R. (2013). Latviešu valodas stili. *Latviešu valoda.* Rīga: LU Akadēmiskais apgāds, 175–192.

Latviešu valoda (2021). Latviešu valodas centralizētā eksāmena vērtēšanas kritēriji. Retrieved from: https://www.visc.gov.lv/lv/media/16108/download?attachment

Martena, S., Laiveniece, D. & Šalme, A. (2022). *Lingvodidaktika: latviešu valodas mācības pusaudžiem un jauniešiem.* Rīga: Latviešu valodas aģentūra.

Standarts (2020). *Noteikumi par valsts vispārējās vidējās izglītības standartu un vispārējās vidējās izglītības programmu paraugiem*. Retrieved from: https://likumi.lv/ta/ id/309597-noteikumi-par-valsts-visparejas-videjas-izglitibas-standartu-un-visparejas-videjas-izglitibas-programmu-paraugiem

Straupeniece, D. & Dzintars, N. (2023a). Skolēnu rakstu valoda latviešu valodas un vēstures valsts pārbaudes darbos 2021. gadā Kurzemē. *Vārds un tā pētīšanas aspekti : rakstu krājums*, 27. Atb. red. Linda Lauze. Liepāja: LiePA, 2023, 61–71. DOI: doi.org/10.37384/VTPA.2023.27.061

Straupeniece, D. & Dzintars, N. (2023b). Pupils' written language in the Latvian language and history state examinations in Riga in 2021. *Human, Technologies and Quality Of Education*,. 632–644. DOI: https://doi.org/10.22364 /htqe.2023.50

Vēsture (2021). *Vēstures centralizētā eksāmena vērtēšanas kritēriji*. Retrieved from: https://www.visc.gov.lv/lv/media/16114/download?attachment

VISC (2007). *Skolēnu sasniegumu analīze tekstveidē latviešu valodas un literatūras centralizētajā eksāmenā: situācijas izpēte un ieteikumi*. Retrieved from: https://www.visc.gov.lv/lv/media/454/download?attachment

VISC (2012). *Centralizētā eksāmena latviešu valodā rezultāti un secinājumi. Metodiskais materiāls*. Retrieved from: https://registri.visc.gov.lv/vispizglitiba/eksameni/dokumenti/metmat/latv_val_rez_sec_metmat.pdf

VISC (2015). Centralizētais eksāmens latviešu valodā 2014./2015. mācību gadā: rezultātu analīze un metodiskie ieteikumi. Metodiskais materiāls. Retrieved from:

https://registri.visc.gov.lv/vispizglitiba/eksameni/dokumenti/metmat/2014_2015_ce_latval_analize.pdf
VISC (2020). *Centralizētā eksāmena latviešu valodā rezultāti 2019./2020.m.g. un ieteikumi.* Retrieved from: https://registri.visc.gov.lv/vispizglitiba/eksameni/dokumenti/metmat/prezent_lv12_2020_un_ieteikumi.pdf
VPSV (2007). *Valodniecības pamatterminu skaidrojošā vārdnīca.* Rīga: LU LVI.

PREREQUISITES FOR ADULT PROFESSIONAL DEVELOPMENT IN THE CONTEXT OF LIFELONG LEARNING

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Abstract. *The development of the world of technology implies the continuous improvement of adult knowledge and the acquisition of new knowledge. Today's rapid development of artificial intelligence and technology is replacing several professions where a robotic process replaces the human factor. To be competitive in the labor market, an employee needs to continuously improve his or her existing knowledge or even learn a new profession, while for a company to be active and up-to-date in its sector, it is necessary not only to develop technologically but also to educate its employees. The aim of the study: to explore the possibilities for improving the professional development and lifelong learning model based on the existing learning model in the institution - X. The basis for the study the employees of the institution X, who are in a continuous learning process, both in the context of professional development and lifelong learning. Research methods: theoretical literature review and empirical research method-survey. The research data show that the training model at the institution X is developed on the principle of non-formal education and corresponds to the main ideas of lifelong learning; the problematic issues are related to the high volume of work, which results in the respondents' inability to fully participate in new in-service training courses and the content being repeated; also, no survey is conducted among the employees of the institution X before the training content is developed. On the other hand, a higher percentage of respondents join additional training courses offered and are positive about the courses where participation is required. The survey data shows that staff members are familiar with the content of the mandatory training courses as well as with the additional training courses offered for both professional and personal development, where a higher percentage of respondents apply the knowledge acquired in their daily work.*
Keywords: *in-service training, lifelong learning, professional development.*

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Introduction

The twenty-first century is characterised by changes in social life brought about by globalisation processes and the development of science and technology, in particular information technology. This brings the importance of education into focus. The ability to update one's knowledge is one of the most important prerequisites for the realisation of the idea of lifelong learning. Today, the concept of a 'learning society' is increasingly used, emphasising the continuity of learning throughout a person's life (Aizsila, 2010).

The importance of education and skills development for the workforce has never been greater. Globalisation, technological development, the age structure of the population, and many other factors are leading employers to focus more and more on the continuous development of the competences of their workforce or even on the retraining of their employees. Today, the performance of job duties is directly linked to continuous learning. Inservice training is one of the elements of lifelong learning and should be considered one of the most important aspects of the tools for developing employees' competence (Puriņa, 2022). It is essential to seek answers to the questions of how workplaces can be made friendly environments for learning and how to ensure that every employee develops the skills and competences that will be useful for his or her career development and the competitiveness of the company (Izglītības un zinātnes ministrija, 2020).

The aim of the research is to explore the possibilities for improving the professional development and lifelong learning model based on the existing learning model in the

institution - X. The methods of research are theoretical literature review and empirical research method-survey**.**

The essence of lifelong learning

Lifelong learning encompasses all types of learning, whether for personal development and personal fulfillment, or development in a professional context, either by updating knowledge or learning a new profession. Lifelong learning is a lifelong learning process based on the changing needs to acquire knowledge, skills, and experience to upgrade or change one's qualifications according to the requirements of the labor market, one's interests and needs. Lifelong learning combines non-formal learning with formal education, developing potential capabilities alongside new competences. Acquisition of knowledge, skills, and competences for work should be provided to the unemployed, job seekers, workers, and business start-ups, preferably of working age (Izglītības un Zinātnes Ministrija, 2020). The concept "lifelong learning" can be equated with "adult learning". Today, lifelong learning is a topical issue in adult society, with the rapid changes in the world. There are many opportunities for learning new skills, as lifelong learning covers the whole spectrum of learning: formal, non-formal, and informal (Latvijas Pieaugušo izglītības apvienība, 2007, p.5), and can be chosen by each person according to their needs and interests. The idea that education should continue throughout life is not new. The need for lifelong learning has been mentioned since the Middle Ages and even in the writings of earlier times. Thus, the pace of the development of today's society makes the issue of lifelong learning increasingly important (Buls, 2017). The lifelong learning process is based on the changing needs to acquire knowledge, skills, and experience to upgrade or change one's qualifications according to interests, needs, and labor market requirements (Martinsone, 2012, p. 9). Aspin (2007) quotes Wayne as saying that the concept of lifelong learning has strategic pedagogical implications that arose from two considerations: the first idea that all forms of learning, not only formal but also informal and everyday learning, should be considered important for education; and the second idea that lifelong learning is intrinsic.

Six key ideas for lifelong learning:

1. New basic skills for all - to guarantee universal and sustainable access to learning to acquire and renew the skills needed for sustained participation in a knowledge-based society.
2. More investment in human resources - to raise the level of investment in human resources to prioritise Europe's most important asset - its people.
3. Innovation in teaching and learning to develop effective teaching and learning methods and contexts for continuous lifelong learning.
4. Assessment of learning - to improve significantly how learning participation and learning outcomes are understood and assessed, in particular the outcomes of non-formal and informal learning.
5. Rethinking advice to ensure that everyone has easy access to quality information and advice on learning opportunities across Europe throughout their lives.
6. Bringing learning closer to home – to provide lifelong learning opportunities as close to the learner as possible, in their local community and supported by information and communication technology (ICT) facilities wherever possible (Latvijas Pieaugušo izglītības apvienība, 2007, p. 5).

Exploring the six key ideas of lifelong learning, we can conclude that a literate society is a key value. Education should be accessible to everyone in society, regardless of where they live or how they are educated - face-to-face or at a distance. Distance learning is the unique opportunity to take courses that may not be available in the participant's city or even country, thus saving several resources and achieving the goal through modern technology. Any person who feels the need for new knowledge should have access to develop themselves in the labor

market, either by acquiring new knowledge or by updating and supplementing existing knowledge, or developing themselves by updating hobbies or self-development.

Professional development opportunities in the workplace

Until 30 years ago, work and learning were concepts that fell into separate categories. Work was about producing or making things, while training was about education. Training was necessary when starting a job, and knowledge could be acquired from experienced colleagues. Since this view, the world of work has changed for the better (Boud &Garrick, 1999, p. 2). In-service training is usually seen as the primary method for improving job performance by improving the skills and knowledge required for the job. This can lead to greater opportunities for employment, up-skilling, and career development (Keegan & Matas, 2020). If employees are offered learning opportunities not only for work but also to develop their interests, they will feel more fulfilled. In-service training is a concept that is difficult to define and needs to be thought about across a range of activities (Goldman, Kitto, Schmitt, & Olson, 2014).

When designing learning, it is necessary to ensure its effectiveness and independence; factors such as motivation, activation, concretization, and individualization are necessary to achieve the goal (Aase, 2001, p. 73). Adults learn effectively when the learning process is reflective, problem-oriented, flexible, involves social interaction, and benefits personal development (Chan, Daneshgar, & Vantoorn, 2008). In adult learning, it is important to link theory to practice and to set learning goals in line with adults' interests and needs. When designing the curriculum and setting the learning objective, it is important to consider that the adult group is not always homogeneous. Each individual may have his or her own experience, training, beliefs, and values (Ivanova, n.d.). In the transition to a knowledge society, where the emphasis is on knowledge production, especially learning is increasingly important. Inservice training is a key component of this, driven by the impact of demographic changes, skills requirements, technology, and human relations across institutions and communities (Vaughan, 2008). Learning in a workplace setting is different from learning in a school or university setting. One of the main differences between learning in a formal education setting and learning in the workplace is that the former is based on formal, deliberately planned learning, while the latter is largely informal and based on work experience (Tynjala, 2008).

An employer's priority should be to have educated employees with the skills needed in today's world, so training in the workplace is an integral part of that. Today's workplace is directly linked to continuous learning, as the world is changing rapidly and employees need to acquire new competences and develop existing ones for comprehensive personal development, while employers need to review existing staff training principles and introduce new ones to update existing knowledge and acquire new (Anužienė, Tolutienė, & Zubrickienė, 2021). Employees need to engage in lifelong learning and acquire new competences to adapt to the ever-increasing demands of a rapidly changing work environment (Oberlander, Beinick,e & Bipp, 2020). in-service training should be seen as one of the most important tools for developing staff competences (Ivanova, 2022). Based on the Latvian State Employment Agency's Employer Express Survey 2022 from 8 June to 30 September, around half of employer respondents (48%) take employee training for granted, stating that updating skills is part of the job and there are no additional benefits for the employee. The same proportion (49%) say that training gives employees better career opportunities (Nodarbinātības valsts aģentūra, 2022).

Methodology

The research strategy is quantitative, based on the collection of quantitative data through questionnaires and data analysis. The study was conducted in the form of an electronic questionnaire, where a web link was sent to the employees of the department. The questionnaire included 22 questions about Inservice training courses in the last year. The questionnaire was anonymous, the invitation period was 2 weeks, and the results were received automatically and aggregated on the web portal where the questionnaire was created. The basis for the research is the institution X, which is in the state administration sector. The staff needs continuous updating of knowledge or learning new ones, because the administrative field is constantly updated by introducing new opportunities and functions for the performance of work duties. The study aims to develop proposals for a professional development and lifelong learning model based on the existing learning model in the institution X. The results obtained are summarised and proposals for a professional development and lifelong learning model based on the existing learning model in the institution X are developed. The institution X has several departments and divisions - the study was carried out within one division with 104 employees. This is on the basis that all employees who take the same courses with a defined objective and purpose. Institution X has compulsory course content and an additional course content where employees can participate at their own choice.

94 respondents took part in the study (Figure 1).

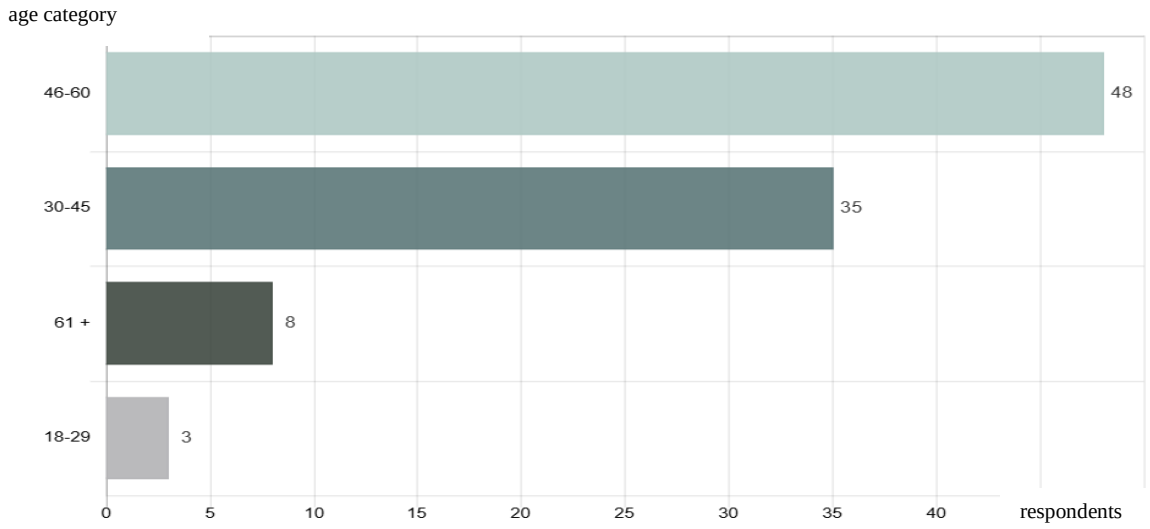

Figure 1 ***Age of respondents*** *(the authors)*

Figure 1 shows that based on the fact that the age of employment is rising, it can be concluded that there are more workers in the active working age group.

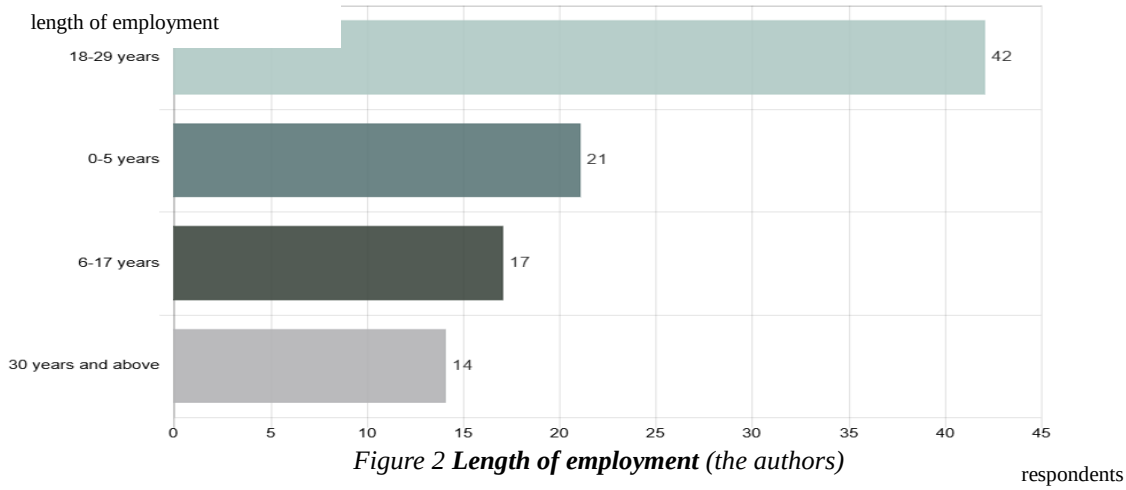

Figure 2 ***Length of employment*** *(the authors)*

One of the most important questions, according to the authors, was to find out the length of service of the staff in institution X. The large number of staff means that staff members have the opportunity to develop professionally, not only by moving up the ranks, but also by changing to another department or unit. Also, on the basis of modern technological developments, where functions are automated, making human resources unnecessary or minimised for certain tasks, staff are offered the opportunity to take up a different post, resulting in a change of the department or unit where the staff member performs duties. Figure 2 shows that that institution X is a stable place to work where staff want to develop their careers.

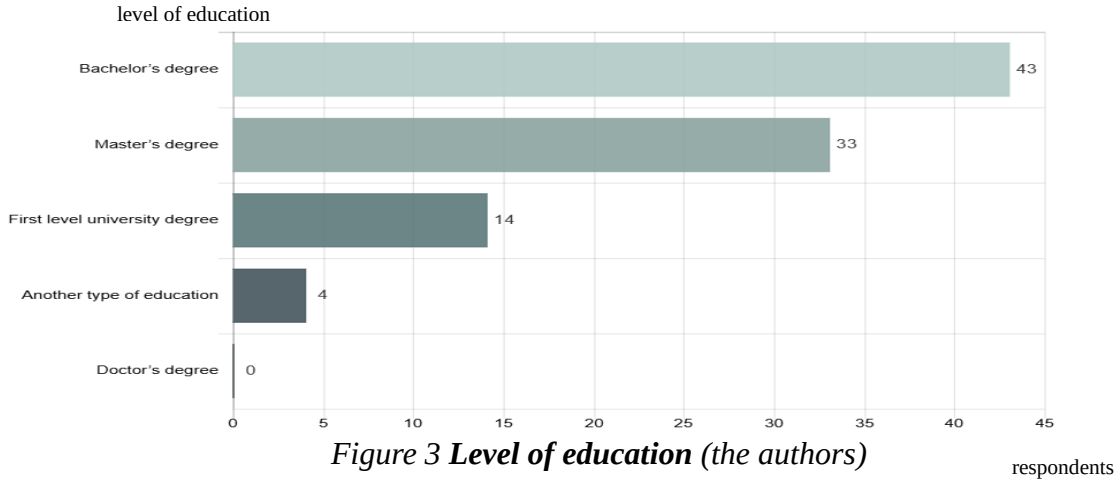

Figure 3 ***Level of education*** *(the authors)*

The institution X determines, on the basis of the job description, the level of education a employees must have to qualify for the post. Figure 3 shows that several employees have a bachelor's degree.

Analysis of survey data

Regarding the question on the relevance of the content of the training to the job duties, the majority of respondents, (44.7%) answered that the content of the training is partly relevant to the job duties, 41.5% - that the content of the training is relevant to the job duties, 10.6% found it difficult to answer the question and 3.2% answered that the content of the training is not relevant to the job duties. In addition, 21.3% of respondents complemented their answers. The highest number of respondents indicated that the content of the training

courses relevant to the job duties is related to communication. In the part of the institution where the questionnaire was carried out, daily work is related to clients and close cooperation between other departments, because of which communication is an integral part of the working day.

It is important not only to deliver training courses but also to make the content of the training courses understandable with sufficient illustrative material for the participants. When asked whether the training courses had sufficient teaching aids, 85.3% said they were sufficient, 12.6% said they were partially sufficient, 2.1% said they did not have sufficient teaching aids and 1 respondent added that the teaching aids were not sufficient for the courses on internal ethics and dealing with management. In the institution X, professional development courses are designed so that the new teaching material has reference material. When asked whether the training courses contained sufficient video and audio content, 85.1% of the respondents answered 'Yes', 13.8% answered 'Partially' and 1.1% answered 'No'. When asked whether the training materials were easy to understand, 84% of respondents gave an affirmative answer, 15% answered “partially”, 1% answered “negative”, and 4.3% added that some of the courses were too scientific, several courses had repetitive topics and the courses should be in simpler language and with examples. When asked whether the new knowledge acquired in the training courses was used in work, 47.9% of the respondents answered that it was partially applied, 44.7% answered that it was applied, and 7.4% indicated that it was not applied. In addition, 7.4% complemented their answer, of which 4% used the new knowledge acquired about communication and 3.4% to the specifics of work within the institutions.

Today, education is a rapidly evolving field, where the word "learning" is not associated with having to be physically present, but there are several forms where you can connect remotely or study independently at your convenience and your personal pace. When asked which form of learning respondents think is most effective, 56.4% preferred remotely (Zoom, Teams platforms), 36.2% face-to-face, and 7.4% self-paced learning (PowerPoint presentations and others). When organising Inservice training, it is important to schedule time for the employee to fully focus on the learning process.

When asked whether the time allocated for in-service training is sufficient, 45.7% of respondents answered 'Yes', 28.7% 'No', 20.2% found it difficult to answer and 5.3% gave their answers, with the majority indicating that the volume of daily work makes it impossible to learn new courses or it is difficult to balance work and learning at the same time, resulting in the need to learn outside working hours. One respondent also pointed out that there are training courses that can be listened to in the background while carrying out work duties.

When asked to make suggestions that would help to improve the training model or environment for future training courses, 40.4% of respondents had no suggestions, 4.3% were satisfied with the current training model and felt that no improvements were needed, while 55.3% had suggestions of which 10% suggested that training should be focused on direct job duties, training topics should be related only to the job to be done, including changes in legislation and with concrete examples. 11.7% of respondents said that it was difficult to fully acquire new knowledge due to the high volume of work, commitments alongside their studies, and because they had to study outside working hours if the lectures were recorded.

In the authors' opinion, balancing studies and work is a difficult process and if studies are connected with work duties, time should be planned during working hours rather than studying outside working hours. 4.3% of respondents believe that theory should be linked to practical examples and that there should be more examples based on real facts. One of the recommendations of the respondents was that the contractor should carefully study the situation in the institution before starting to organise training courses so that the training was not disconnected from the environment and context. The respondent's recommendation is based on the fact that several courses are superficial and the guest lecturers do not understand

the environment in which the training courses are delivered, based on the fact that the work of the institution is specific and all the activities to be carried out are based on legislation. The lecturer should study before the lecture both the environment and the duties of the staff so that the format and content of the lecture are appropriate to the work to be carried out.

4.3% of the respondents said that a staff survey should be carried out before planning professional development courses so that the training department has the opinions of the staff on which training is needed and why. Some respondents noted that the training should be in small groups so that not only theoretical issues can be covered, but also practical exercises and lectures in a discussion format so that staff can share experiences. One respondent said that training courses should be organised in such a way that there is no overlap between topics that have already been covered so that there is no need to listen to the same thing several times. In the authors' opinion, this problem exists in the institution and is based on the amount of work to be done and minimal time resources allocated to training courses.

Professional development courses need in-depth research to ensure that all resources spent are justified and the knowledge acquired can be applied in the performance to the job. If additions are needed to a certain topic, then training courses should contain only the changes. There is no need to repeat knowledge that is applied in the daily performance of the job for a larger part of the course. One respondent also said that courses do not help in the job, but rather "take time away" from the job. When asked about their evaluation of the training courses over the last year, most respondents, 68%, rate the courses as positive, 29% have a neutral attitude, and 3% rate the course negatively.

When asked about taking additional training courses, 79.8% of respondents said they were taking additional training courses and 20.2% said they were not taking additional training courses. The employee can choose whether to take additional courses on his/her initiative, as each individual assesses what additional knowledge is needed, as similar courses may have already been taken in the past. In order to fully benefit from the training courses, it is necessary to find time outside working hours - such answer was given because the workload is high. When asked which of the additional training courses offered were interesting and engaging, 25.3% said they were courses related to psychological topics, such as mindfulness, self-growth, time and energy management, and similar courses. 17.3% mentioned courses on artificial intelligence, but 12% of respondents answered that the courses related to communication and 21.3% - the courses related to job performance.

Asked if you take part in additional courses, would you recommend colleagues to take advantage of this opportunity, 54.3% of the respondents answered that they would, but not all, 33% answered that they would recommend, while 12.8% would not recommend attending additional courses. Regarding the familiarity of the lecturers who delivered the training courses, 71.3% of respondents indicated that they were not previously known, 24.5% of respondents indicated that they were partially known, while 4.3% indicated that they were previously known. From the data it can be concluded that lecturers change and are rarely invited repeatedly to conduct training courses.

When asked what is the optimal teaching time for one course, 63.8% of respondents said 90 minutes, 31.9% - 180 minutes and 4.3% said 240 minutes or more. When asked about the evaluation of the testing system after the course, 48.9% of the respondents answered positively, 46.8% answered neutrally and 4.3% answered negatively. From the responses, it can be concluded that, in general, respondents are satisfied with the testing system or the knowledge test after the course and that they do not find it burdensome.

Table 1 shows a summary of the responses on the evaluation of the learning content.

Table 1 ***Learning opportunities in the institution X*** *(the authors)*

Positive aspects	Negative aspects
Related to professional activity	Recurrent topics
Lecturers active in the field of the course to be taught	Not related to direct job responsibilities
With practical examples	With outdated information that is no longer relevant
Relevant to direct duties, so that the knowledge acquired can be applied in the field of work	Only need to read the informative presentations
In plain language, easy to understand information	Too theoretical and general
Related to legislation	Lecturer is not interested in engaging the audience, the lecture is read out
Learning content requiring participation	Learning content too scientific, with foreign words and terms
Self-development	Specific training courses for tasks are organised late

Table 1 shows that the employees are interested in training related to their direct job duties and in applying the new knowledge they have acquired, while training that is only theory-based, informative, or superficial is viewed negatively because this type of training is a part of the compulsory training and therefore waste of time. Lecturers who are active in the field of training and who conduct training courses are seen as positive by the staff of the institution X. If the lecturer is not only a theoretician but has also worked practically in a certain field, then, in the opinion of the respondents, the new information is the most useful and effective, since not only theory is taught but also practical examples that can later be applied in their work practice. Lectures that are presented in an easy-to-understand language are positively appreciated. On the other hand, lectures presented in scientific language, using foreign words and concepts without explaining their meaning, are viewed as negative, because this type of lecture is difficult to understand, and the subsequent application of new knowledge is almost impossible, as the information presented is partially incomprehensible.

Some respondents replied that if the lectures were delivered by staff who have experience based on the specifics of the job and apply it in the performance of their duties, the training would be effective as it would be based on concrete examples of how to apply the new knowledge in the performance of their duties using the internal work programme of the institution X. Respondents have a positive view of training courses, where participation is required, where discussion and expression of views can lead to new experiences, not only from the lecturer but also from colleagues. The staff of Institution X has a negative view of training courses that are repeated several times, because these courses are mostly on the compulsory training list and that the information in the course content remains unchanged from year to year and is outdated.

It is also considered negative if training is provided late, although there are specific tasks that require new knowledge. Each work assignment in the institution X has a deadline, and, if the assignment is given and the training is organised a few days before the deadline, this results in a too short period given for the assignment. Due to situations where certain necessary functions may not work in the internal programme of the institution, the work process becomes stressful and there is a possibility that the assigned task will not be completed by the deadline. Several respondents replied that they were satisfied with the training content and had a positive opinion about the training system, and one respondent replied 'I think the training offered is positive, as any new knowledge cannot be negative'.

No system can be designed to meet the needs and desires of all learners. The answers given by the respondents show that there are elements that need to be improved or refined, but in general, the training model is designed for the professional development and self-

development of staff, where the knowledge gained from self-development courses can be applied in the performance of their duties.

When asked about training courses that help professional development, 10.6% of respondents answered that the courses related to communication. This type of training course can teach new information and new skills, because communication is different, not only business and formal, but also stress communication. Stress communication is important when dealing with people, one can be guided by the inner feeling to continue the conversation in such cases, but if one has some theory, practical examples, and techniques to react and continue the conversation with a negative interlocutor, communication continues without reacting to provocations and impulse responses.

10.6% of the respondents would like to take courses related to psychology, self-development, and stress reduction, 29% - courses based on the specificity of the work to be done and the internal working software, adding that the software has many different functions but not all are known; some functions that speed up the working process were learned through self-learning or with the support of colleagues. 16% of respondents said that the courses linked to legislation support their professional development because the institution's work process is linked to legislation and legal norms. This type of course and training is a part of the institution's X learning model programme.

One respondent replied that training that includes practical and useful advice and is based on practical examples, which can be tested, and clarifying questions asked during the training, are valuable for applying them to everyday work tasks. 17% of respondents said that the content of the training courses related to Microsoft applications and artificial intelligence and digitisation is important. The daily work of the institution X is related to continuous calculations, so Microsoft Excel is a daily work tool for several employees. Based on the fact that the programmes are updated and new features are added, as well as changes to features and where to find them, the authors believe that after each common update of Microsoft programmes, training with practical exercises is needed where new or improved features can be used to perform practical tasks and questions of interest can be asked. Artificial intelligence is an everyday tool today, and the institution also has internal and external virtual assistants who can help to find out the issues related to its work process.

9.6 % of the respondents mentioned the training courses related to learning a foreign language, and 2.1 % indicated the training courses on job duties, and tasks, but these types of courses in the training system of the institution X do not exist. However, 30% of the respondents refrained from answering or answered that there were no specific courses, without giving the name of a specific course. Several answers pointed out that any type of training course contributes to personal development and contains new knowledge for self-development and self-improvement. On the other hand, 26.6% of the respondents answered that training courses do not contribute to personal development or refrained from answering. One of the respondents answered that he no longer wanted to take training courses as he had reached the age of 60 and had taken all types of training throughout his working life and had received numerous certificates of all types. The remaining 11.7% of respondents indicated that training courses related to communication, language learning, and digital tools support their personal development.

Discussion

Based on the rapid changes in the digital field, a modern workplace includes employee education, so that they can be in line with the changes and innovations in the workplace, as well as retrain if necessary.

The training model at the institution X is based on non-formal education, where training courses are delivered both remotely and face-to-face. Based on the continuous development of the institution, staff need to acquire new knowledge to fully perform their job duties by applying new digital tools. It is useful to offer these types of training courses by using practical activities so that they can try them out and ask additional questions during the course. As knowledge is required based on the specificities of the job, this training model meets the needs of the institution X. Moreover, the training model is in line with the key idea of lifelong learning, where training is accessible to all employees, and they can choose the training courses they need based on work and personal interests.

From the data, it can be concluded that based on the workload, the respondents cannot fully participate in new training courses during working hours, which are organized in a distance format. It is a difficult process as they cannot fully focus on the learning process, while some training courses in a lecture format are listened by some of the respondents parallelly with their work duties or outside working hours so that they can fully focus on the learning process and there are no external distractions.

There are courses with overlapping topics or repetition of material already covered. Based on the results obtained on the seniority of the respondents, where the majority have been employed in the institution X for more than six years, staff members have attended several training courses, which may result in a repetition of training material. There are types of staff members who feel that all the necessary knowledge has already been acquired and that training courses are unnecessary.

A higher percentage of respondents are taking additional training courses, mainly those related to communication and interaction, psychology, and digital tools. Based on the theory of adult learning, where new knowledge is a conscious process, the effort to use the opportunities to acquire new knowledge is a process of personal development, where the individual is aware of what knowledge is additionally necessary for self-development or work needs. However, every adult has his or her own interests and values, so the offer of training courses cannot match all interests. Each individual assesses the need for additional learning, for some, it is only the content, whereas another pays attention to the way the lecturer delivers the content.

Respondents are positive about training courses that require participation in discussions and expression of opinions, as they can gain new experiences not only from lecturers but also from colleagues. On the basis that it is important to link theory and practice in adult learning, participation is a prerequisite for adult learning, as learning from experience, especially from colleagues, is a valuable process that can be applied in the future in the workplace.

Based on the research carried out, the relevant prerequisites for professional development in the workplace have been explored: the type of training course, the materials to be considered in the training courses, and the time allocated to professional development courses during working hours. According to the data, it can be concluded that most respondents believe that the most effective learning model is the distance learning format (Zoom or Teams platforms), whereas some of the respondents prefer the face-to-face learning format. The number of visible materials was sufficient according to the respondents' answers, from which it can be concluded that professional development courses are designed to have video, audio, practical examples, and other visible materials as the part of the course content. Based on the content of the learning model in the institution X, there are mandatory courses that must be completed to perform job duties. Based on the data it can be concluded that most of the respondents have sufficient time resources for in-service training but cannot fully focus on the learning process because learning process takes place at the workplace parallelly with job duties and employees must switch to urgent work issues.

It also explores the prerequisites for quality professional development: the content of the course and the application of the acquired knowledge to the job. The data show that respondents consider that the content of the training is partly relevant to the job duties and that they also have a positive view of the content of training related to professional activities with practical examples and where participation is required. The answers given by the respondents show that a high proportion of respondents apply or partially apply the new knowledge acquired, which suggests that the training system has been designed in line with the duties of the job. Employees with more seniority have taken several courses on internal job specifics and duties to be performed, while for new employees all the courses to be learned are new.

Conclusions

As in-service training is a key component of skills development, technological tools, and human relations, it is recommended that the institution X organise study days or training sessions for the compulsory courses, where the employee is fully engaged in the learning process so that external factors do not interfere with the learning of new knowledge and employees can share experiences and ask questions.

Institution X evaluates the content of the new mandatory training courses before renewing the training model.

No survey is carried out among the staff of the institution X on the desired content of the courses before the content is developed. The mandatory content of the training model is based on the daily work and job duties to be carried out, while in addition to the training model, it would be advisable to survey the staff to ensure that the content of the training courses is relevant to the needs of the staff.

Organise in-service lectures with staff members who have experience and knowledge of the duties of the post. This type of training content would be productive for the performance of job duties.

References

Aase, G. (2001*). Kā mācās pieaugušie*. Rīga: Poligrāfists

Aizsila, A. (2010). *Pedagogu tālākizglītības programmas realizācija*. LLU Izglītības un mājsaimniecības institūts. Retrieved from: https://llufb.llu.lv/proceedings/n24/9/LLU_raksti_Nr24-76-85.pdf

Anužienė, B., Tolutienė, G. & Zubrickienė I. (2021). Chages to staff training startegies in a business organisation in terms of learning and competence development. SOCIETY. INTEGRATION. EDUCATION Proceedings of the International Scientific Conference. Volume IV, May 28th-29th, 2021, 30-47. DOI: https://doi.org/10.17770/sie2021vol4.6253

Aspin, D. (2007). Philosophical Perspectives on Lifelong Learning. *Lifelong Learning Book Series, vol 11*. DOI:10.1007/978-1-4020-6193-6_2

Beinicke, A., Bipp, T., Oberlander, M. (2020). Digital competencies: A review of the literature and applications in the workplace. *Computers & Education, 146*. DOI: https://doi.org/10.1016/j.compedu.2019.103752

Boud, D., Garrick, J. (1999). *Understanding Learning at Work.* London: Routledge

Buls, Z. (2017). *Cilvēka attīstība mūžizglītības kontekstā*. EPALE - Eiropas pieaugušo mācīšanās elektroniskā platforma. Retrieved from: https://epale.ec.europa.eu/lv/blog/cilveka-attistiba-muzizglitibas-konteksta

Chan, E., Daneshgar, F., Vantoorn, C (2008). *E-Learning in Workplaces*. DOI: https://doi.org/10.1109/ITICT.2008.4806643

Goldman, J., Kitto, S., Schmitt, M.H. & Olson C.A. (2014). Examining the intersections between continuing education, interprofessional education and workplace learning. *Journal of Interprofessional Care, Volume 28, 2014 - Issue 3: Special Themed Section: Workplace Learning and Continuing Interprofessional Education*, 183-185. DOI: Ivanova, I. (2022). „Mācīšanās darba vietā" jēdziena attīstība un tās būtība. Retrieved from: https://epale.ec.europa.eu/lv/blog/macisanas-darba-vieta-jedziena-attistiba-un-tas-butiba

Ivanova, I. (n.d.). *Pieaugušo mācīšanās īpatnības*. Retrieved from: https://epale.ec.europa.eu/sites/default/files/i_ivanova_pieauguso_macisanas_ipatnibas_31_08_11.pdf

Izglītības un zinātnes ministrija (2020). *Pieaugušo izglītība*. Retrieved from: https://www.izm.gov.lv/lv/pieauguso-izglitiba

Keegan, B.P., Matas, S.D. (2020) . A Case Study on Adult and Workplace Learning. E*ducation and Management Engineering, 1*, 11-19. DOI: 10.5815/ijeme.2020.01.02

Latvijas Pieaugušo izglītības apvienība (2007). *Ceļā uz mūžizglītību. Mūžizglītības politika Latvijā*. Rīga: Latvijas Pieaugušo izglītības apvienība.

Martinsone, K. (2012). *Pieaugušo izglītība*. Rīga: Raka

Nodarbinātības valsts aģentūra (2022). Darba devēju ekspresaptaujas ziņojums "Darba devējiem nepieciešamās darbinieku prasmes". Retrieved from: https://www.nva.gov.lv/lv/jaunums/publicets-darba-deveju-ekspresaptaujas-zinojums-darba-devejiem-nepieciesamas-darbinieku-prasmes?utm_source

Puriņa, D. (2022). *„Mācīšanās darba vietā" jēdziena attīstība un tās būtība*. Retrieved from: https://epale.ec.europa.eu/lv/blog/macisanas-darba-vieta-jedziena-attistiba-un-tas-butiba

Vaughan, K. (2008). *Workplace Learning: A Literature Review*. Retrieved from: https://www.academia.edu/2057544/Workplace_learning_A_literature_review

Tynjala, P. (2007). Perspectives into learning at the workplace. *Educational Research Review Volume 3, Issue 2*, 130-154. DOI: https://doi.org/10.1016/j.edurev.2007.12.001

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CHESS PLAY AS A MEANS OF IMPROVING INCLUSIVENESS OF DISADVANTAGED GROUPS

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Abstract. *Chess game as a means of the enhancement of inclusiveness of disadvantaged groups is attracting more and more attention from chess federations, social workers, youth trainers, etc. The aim of this work is to analyse scientific literature to establish conceptual and theoretical inter-connections between disadvantaged groups' inclusion, chess game, and metacognition. The present work relates to exploratory research. The methodology of the analysis in the present work proceeds from exploration through analysis to the formulation of a new research question. The method of literature review was applied in this work. Theoretical literature review was carried out. Novelty of this research lies in the establishment of conceptual and theoretical links to chess play as a means of individual's metacognitive development for his/her social inclusion. The conclusion is that there exist conceptual and theoretical inter-connections between disadvantaged groups' inclusion, chess game, and metacognition. The conceptual links extended the range of analysed concepts to five and change their order: disadvantaged groups' inclusion, rehabilitation, personality, metacognition, and chess game. The algorithm includes the logical and sequential steps based on the established theoretical links: 1)Playing chess enriches individual's metacognition. 2)Improved individuals' metacognition increases this individual's inclusiveness. Directions of further research are proposed.*
Keywords*: Chess play, conceptual links, disadvantaged groups, inclusion, metacognition, theoretical links, theoretical literature review.*

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Introduction

Chess game has been attractive for people for about 2000 years (Kazemi, Yektayar, & Abad, 2012).

Due to unique capabilities of chess game, chess play has become a means of development and upbringing (Romanova, Vasylieva, & Podberezskyi, 2018).

The use and benefits of chess game in education is well acknowledged on the basis of research evidence revealed by scientific community in the field of

- Development of problem solving skills (Kazemi, Yektayar, & Abad, 2012),
- Enhancement of mathematical problem solving ability (Sala, & Gobet, 2017),
- Improvement of teaching and learning of mathematics (Tachie & Ramathe, 2022),
- Increasing academic performance (Meloni, & Fanari, 2021), etc.

However, chess game as a means of the enhancement of inclusiveness of disadvantaged groups is attracting more and more attention from chess federations, social workers, youth trainers, and others.

It is worth noting that, by disadvantaged groups, groups of migrants, ethnic minorities, people with disabilities, isolated people, lonely elderly people, children, people from remote areas, people who face economic, social and/or cultural barriers, etc are meant.

Chess can improve inclusiveness for players with disabilities, allow the integration of the most fragile or excluded in a structured and rewarding universe, participate in improving

the diet of players (especially young people) in the practice of the game, promote professional integration (Droin, 2024). Chess helps increase intellectual and social-emotional enrichment in schoolchildren for their better integration into school life (Aciego, García, & Betancort, 2012). Chess skills are recognised as an advantage in the individuals' integration into labor market and into their further life roles, even at the highest management levels (Jankovic, & Novak, 2019). Chess players show better mental health of the nation (Jankovic, & Novak, 2019) that facilitates society integration processes. Chess play helps reduce communication disruptions in properties and types of attention, memory and thinking of the people with hearing impairments, thereby increase opportunities of those people with limited health capacities to improves their welfare (Mikhaylova & Makhov, 2018). Chess also has a therapy effect on those who have bipolar disorders, depression, ADHD and neuro-behavioral disorders; people with mental disorders; addiction patients; old persons with mild cognitive impairment and dementia (Romanova, Vasylieva, & Podberezskyi, 2018). Chess was also found to be a way of inclusion of prisoners in society and ultimately in the labour market, thereby promoting sustainability in wellbeing (Tomé, Godinho, & Lopes, 2023).

Inclusiveness can be affected by distortions or deficiencies in social information processing that may lead to maladaptive behaviour (Hariharan, Zaščerinskis, & Zaščerinska, 2015). Some of these and other barriers to inclusion can be mitigated via metacognition (Atkins & Doherty, 2022).

The aim of this work is to analyse scientific literature to establish conceptual and theoretical inter-connections between disadvantaged groups' inclusion, chess game, and metacognition.

The present work relates to exploratory research. The methodology of the analysis in the present work proceeds from exploration through analysis to the formulation of a new research question. The method of literature review was applied in this work.

The novelty of this research lies in the establishment of conceptual and theoretical links to chess play as a means of individual's metacognitive development for his/her social inclusion.

Methodology of the Research

The present research was based on literature review. Literature review was chosen due to its importance in any type of research. Literature review serves as the grounds for future research and theory (Snyder, 2019).

Theoretical literature review as a type of literature review was selected for the present work. Theoretical literature review is essential in research work for generating new frameworks and theories (Paré, Trudel, Jaana, & Kitsiou, 2015). The steps of theoretical literature review, adapted from Templier and Paré (2015), in the present work include

1. formulating the research question(s) and objective(s),
2. searching the extant literature,
3. screening for inclusion,
4. assessing the quality of theories,
5. extracting conceptual inter-connections, and
6. formulating theory.

Following these steps, the enabling research question is: Are there any conceptual and theoretical inter-connections between disadvantaged groups' inclusion, chess game, and metacognition?

The objective of the theoretical literature review is to establish conceptual and theoretical inter-connections between disadvantaged groups' inclusion, chess game, and metacognition.

Search for literature with the google was based on the use of the concepts "Disadvantaged groups' inclusion", "Chess game", and "Metacognition".

Articles, that were selected for the literature review, are theoretical papers, review articles, and empirical studies articles (Ramdhani, Ramdhani, & Amin, 2014). Choosing literature with conflicting theoretical positions and findings along with the position or prediction empowers the analysis and synthesis for formulating the research findings (Ramdhani, Ramdhani, & Amin, 2014).

Screening for article inclusion into the theoretical literature review is based on the criteria, namely conceptual inter-connections between

- "Disadvantaged groups' inclusion" and "Chess game",
- "Disadvantaged groups' inclusion" and "Metacognition", and
- "Chess game" and "Metacognition".

It should be noted that, by concept, a verbal abstraction drawn from observation of a number of specific cases (Watt & van den Berg, 2002) is meant. The method of conceptual links is widely used in Information and Communication Technologies (ICT) to perform clustering by using links among objects (Steinhaeuser & Chawla, 2010). The classical objective in ICT is to partition the network into several components (Stattner & Collard, 2012). In this work, identification of conceptual links is needed for the establishment of links between different theories. Theoretical links mean (Richardson, 2015) that

- The underpinning theory used in research can be a further source to link to similar types of study or to similar reasons for studying a phenomenon.
- Connection with existing evidence base is shown to give a clear indication that the current knowledge in regards to a topic, the way it is thought about in an academic sense, and the type of arguments people are making about it is familiar to the researcher.
- Convincing evidence from other published theorists/authors is used to build on.

Figure 1 illustrates the logical chain of the implementation of the search for conceptual and theoretical links.

In the present research, identification of conceptual links is aimed at linking theories to build algorithms that maximize the effect on a phenomenon.

Identified conceptual inter-connections were structured and summarised via the implementation of content analysis (Zascerinska, 2022). Content analysis was based on the interpretation of the obtained material (Zascerinska, 2022). Researchers, who implemented the theoretical literature review, interpreted the revealed theoretical inter-connections (Ahrens, Purvinis, Zascerinska, Miceviciene, & Tautkus, 2018).

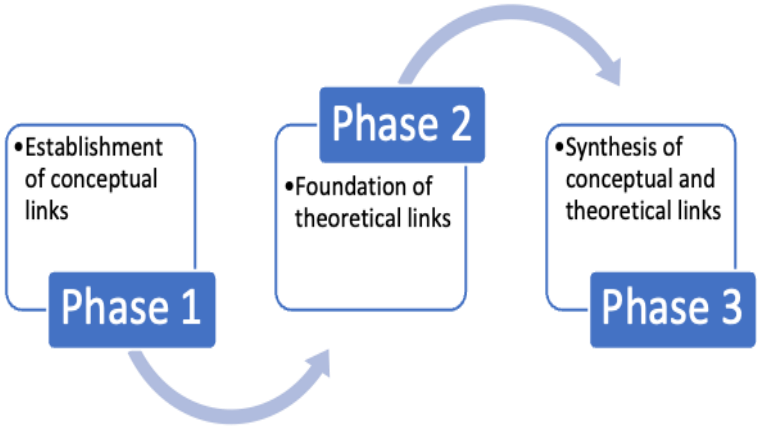


Figure 1 ***Phases of the establishment of conceptual and theoretical links*** *(the authors)*

Research Results and Findings

First, implementation of the methodology of the present research focused on the establishment of conceptual links between the concepts of

- "Disadvantaged groups' inclusion" and "Chess game",
- "Disadvantaged groups' inclusion" and "Metacognition", and
- "Chess game" and "Metacognition".

It is worth noting that the search for conceptual links during the course of the implementation of the theoretical literature review has widened the links between the concepts of disadvantaged groups' inclusion, chess game, and metacognition. Analysis of theoretical literature allowed constructing the logical chain of conceptual links reflected in Figure 2.

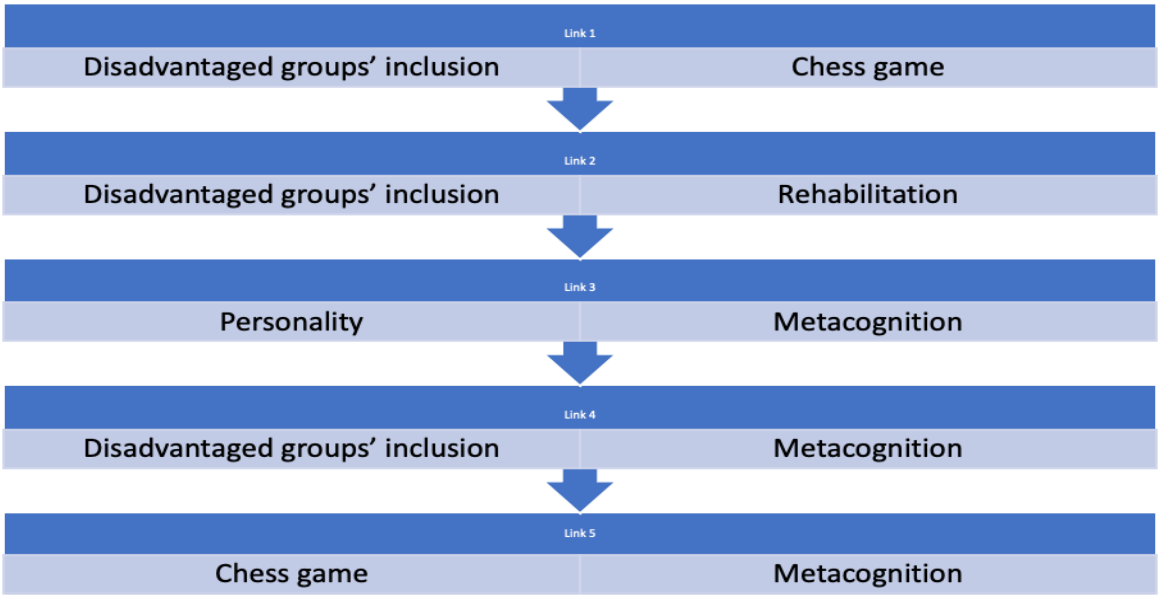


Figure 2 ***Extended links between the concepts*** *(the authors)*

Table 1 reveals inter-connections between the concepts shown in Figure 2.

Table 1 ***Inter-connections between the concepts*** *(the authors)*

Nr.	Concepts	Conceptual inter-connections	Reference
1	"Disadvantaged groups' inclusion" and "Chess game"	Chess is an interesting tool for the social integration of disadvantaged groups	Tomé, Godinho, & Lopes, 2023
		Chess is a means of rehabilitation	Romanova, Vasylieva, & Podberezskyi, 2018; Ekizoğlu, Yazici, Isik, Acet, & Gümüsgül, 2023
2	"Disadvantaged groups' inclusion" and "Rehabilitation"	The social rehabilitation practice of inclusion means providing social rehabilitation assistance to disadvantaged individuals in order to restore the socio-psychological, value-based and behavioral components of personality and meeting the needs of socialization.	Vasylyeva-Khalatnykova, Chuiko, Bakhov, Ternopilska, & Chernukha, 2021
3	"Personality" and	Metacognition is person's internal	Lianguzova, 2021

	"Metacognition"	orientation	
		Metacognition is thinking about thinking	Chick, 2013
		Thinking is a function of personality's brain	Singh & Singh, 2011
4	"Disadvantaged groups' inclusion" and "Metacognition"	Metacognition is the inclusivity mirror or, in other words, reflection	Tolman, 2020
5	"Chess game" and "Metacognition"	Chess play has the potential to increase metacognitive ability of individuals	Kazemi, Yektayar, & Abad, 2012; Tachie & Ramathe, 2022; Meloni, & Fanari, 2021
		Chess instruction affect metacognitive ability in a modest way.	Sala & Gobet, 2017
		Chess game is a more creative way of bringing up and adopting educational content to enhance metacognition	Jankovic, & Novak, 2019
		Adaptive chess training develops personal qualities, or, in other words, such metacognitive skills as logical thinking, that are professionally significant for individuals	Mikhaylova & Makhov, 2018

After having established the conceptual links, this work intended to analyse theoretical inter-connections for the improvement of disadvantaged groups' inclusiveness via chess game. It should be pointed that, by theory, a scientific explanation of a phenomenon is meant. Table 2 reflects theoretical links and their explanation defined in this research.

Table 2 ***Theoretical links and their explanation*** *(the authors)*

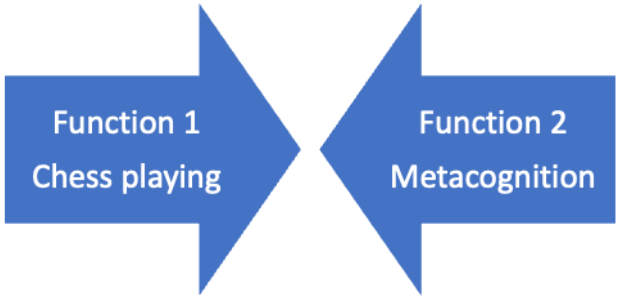
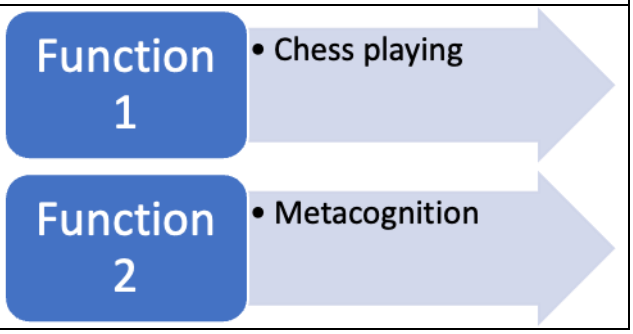
Nr	Theoretical link	Scientific explanation	Reference
1	Individual inclusiveness is based on the psychological system	Psychological system means the development of the relationship between functions, e.g chess playing and metacognition. Important is a change in the relationship between functions, and not the development of each function as demonstrated in Table 3.	Леонтьев, 1982
2	Psychological processes provide the basis for pedagogical developments	Metacognition refers to psychology. Metacognition in psychology is known as "ability". Learning to learn, including in chess playing refers to pedagogy. Pedagogical category of learning to learn means "skills"	Ahrens & Zaščerinska, 2014
3	The science of metacognition	Psychology	Livingston, 2003
4	Individual's inclusiveness is reflected by his/her metacognition	Metacognition is the inclusivity mirror. Consequently, chess playing is the pedagogical reflection of inclusiveness	Tolman, 2020
5	Increase of individual's inclusiveness means the improvement of this individual's metacognition	Individual's metacognition helps regulate his/her behavior on the basis of inferences about others' intentions, dispositions, and actions	Levesque, 2014
6	Thinking, as metacognitive ability, is a function of the brain	It is the brain and nervous system which run the rest of the body and all its activities, including thinking and action in all their forms	Singh & Singh, 2011
7	Metacognition, as the sum	Mind is the product of brain activities	Singh &

	total of relevant brain functions, is the product of the mind		Singh, 2011
8	Mind originates from brain	Brain is the producer, mind its product	Singh & Singh, 2011
9	Brain is the head of the central nervous system	The brain and the nervous system run the rest of the body and all its activities, including thinking and action in all their forms	Singh & Singh, 2011
10	The science of the brain and mind	Cognitive neuroscience	Singh & Singh, 2011
11	Inclusiveness in cognitive neuroscience (the science of the brain) and cognitive psychology (the science of the mind)	Mirror neurons provide the physiological mechanism for the perception/action coupling and for learning new skills by imitation.	Ahrens, Purvinis, Zascerinska, Miceviciene, & Tautkus, 2018
12	Inclusiveness in chess play	Mirror neurons in simulations/games help understand, explain, and predict others' behaviour by individuals mentally putting themselves in the shoes of another person and imagining how they would feel and act in the given context	Ramlakhan, 2012
13	Chess game, being a pedagogical tool, improves individual's metacognition, thereby increasing individual's inclusiveness	Adaptive chess training develops metacognitive skills, that are significant for individual's inclusiveness	Mikhaylova & Makhov, 2018

This theoretical literature review allows finding out that there are conceptual and theoretical inter-connections between the concepts of disadvantaged groups' inclusion, chess game, and metacognition.

The establishment of the conceptual inter-connections was based on the links found in the definitions of the concepts. These discovered links led the researchers to widening the key concepts from three to five: disadvantaged groups' inclusion, rehabilitation, personality, metacognition, and chess game.

Table 3 ***Development of the relationship between functions as well as development of each function*** *(the authors)*

Development of the relationship between functions	**Development of each function**
	

The search for theoretical links was implemented on the basis of two sciences: psychology and neuroscience. Involvement of other sciences in the interdisciplinary research

carried out in the course of this work could strengthen and extend the obtained theoretical links related to disadvantaged groups' inclusion, metacognition, and chess game.

Discussion

The established theoretical links allow finding out that chess play may impact the improvement of individual's metacognition, thereby increasing this individual's inclusiveness. This finding is supported by existing empirical evidence (Kazemi, Yektayar, & Abad, 2012; Sala & Gobet, 2017; Mikhaylova & Makhov, 2018; Jankovic, & Novak, 2019; Meloni, & Fanari, 2021; Tachie & Ramathe, 2022). The carried out theoretical literature review can serve as a source to link to similar types of study or to similar reasons for studying a phenomenon.

Theoretical links allow building an algorithm that maximize the effect of individual's inclusiveness via development of this individual's metacognition in chess play. The algorithm includes the logical and sequential steps based on the established theoretical links presented in Table 2:

1. Playing chess enriches individual's metacognition.
2. Improved individuals' metacognition increases this individual's inclusiveness.

The theoretical literature analysis revealed in Table 2 prescribes the indicated sequence of the steps in the elaborated algorithm.

Conclusions

The research carried out within this work allows concluding that there exist conceptual and theoretical inter-connections between disadvantaged groups' inclusion, chess game, and metacognition. The conceptual links extended the range of analysed concepts to five and change their order: disadvantaged groups' inclusion, rehabilitation, personality, metacognition, and chess game.

Another conclusion, based on theoretical links and existing empirical evidence, is that chess playing positively effects individuals' metacognition, and, consequently, increases this individual's inclusiveness.

The research presented in this work is devoted to building an algorithm to maximize the effect of individual's inclusiveness. The created algorithm contributes to the conclusion that improved individuals' metacognition is a step forward to the increased inclusiveness of this individual.

Also, the conclusion on the basis of the implemented theoretical literature review has been drawn that chess play is an effective pedagogical tool to improve individuals' metacognition, and, consequently, increase this individual's inclusiveness. Chess play encompasses a wide range of metacognitive abilities and skills, e.g. individual's problem solving, creative thinking, planning, strategic thinking, logical thinking, and others. The conclusion is also that the proposed sequence of the actions first focuses on

- the development of individuals' metacognition, and, later,
- the enrichment of this individual's inclusiveness.

The present research has some limitations. The conceptual and theoretical links between disadvantaged groups' inclusion, rehabilitation, personality, metacognition, and chess game have been set. The present work was also limited by leveraging two sciences, namely psychology and neuroscience, for the establishment of theoretical links between disadvantaged groups' inclusion, rehabilitation, personality, metacognition, and chess game. If other sciences had been found relevant, the other results related to the establishment of

theoretical links would be obtained. A limitation is also that only theoretical methods were deployed in the present work.

Future theoretical analysis intends to include the interdisciplinary research with the involvement of other sciences than psychology and neuroscience. Further research intends to focus on the implementation of empirical studies. Another direction of future work includes the involvement of different groups of disadvantaged people into empirical studies to measure the effect of chess play on individual's metacognition and inclusiveness.

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References

Aciego, R., García, L., & Betancort, M. (2012). Intellectual and Social-Emotional Enrichment in Schoolchildren. *The Spanish Journal of Psychology 2012, Vol. 15*, No. 2, 551-559 DOI: http://dx.doi.org/10.5209/rev_SJOP.2012.v15.n2.38866

Ahrens, A., Purvinis, O., Zascerinska, J., Miceviciene, D., & Tautkus, A. (2018). *Burstiness Management for Smart, Sustainable and Inclusive Growth: Emerging Research and Opportunities*. IGI Global. DOI: 10.4018/978-1-5225-5442-4.

Ahrens, A. & Zaščerinska, J. (2014). Students' Attitude to Interdisciplinary Research. *Society, Integration, Education. Proceedings of the International Scientifical Conference. Volume I: Higher Education Institutions Pedagogy*, School Pedagogy, Pre-School Pedagogy. May, 23th-24th, 2014, pp. 13-23. – Rēzekne: Rēzeknes Augstskolas Izdevniecība, 2014. – p 616.. Retrieved from http://www.ru.lv/ckfinder/userfiles/RAweb/Saturs/zinatne/zinatniskie_instituti/personas_socializacijas_petijumu_instituts/izdevumi/2014/I_DALA.pdf .

Atkins, L. & Doherty, J. (2022). *"But how and why does it "work"?: A primary school study into the impact of metacognitive strategies on disadvantaged learners*. Retrieved from https://my.chartered.college/impact_article/but-how-and-why-does-it-work-a-primary-school-study-into-the-impact-of-metacognitive-strategies-on-disadvantaged-learners/

Chick, N. (2013). *Metacognition*. Vanderbilt University Center for Teaching. Retrieved from https://cft.vanderbilt.edu/guides-sub-pages/metacognition/

Droin, F. (2024). *ECU Social Commission Missions*. Retrieved from https://social.europechess.org

Ekizoğlu, Ö., Yazici, N. A., Isik, U., Acet, M., & Gümüsgül, O. (2023). The rehabilitative effect of chess on the visually impaired. *Loisir et Société / Society and Leisure, 46*(2), 354–366. DOI: https://doi.org/10.1080/07053436.2023.2216592

Grant, M.J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal, 26*, 91–108. DOI: https://doi.org/10.1111/j.1471-1842.2009.00848.x

Hariharan, R., Zaščerinskis M., & Zaščerinska, J. (2015). Learning the Concept of Human Brain Neuro Imaging in Social Cognition by Student Teachers in India and Latvia. The proceedings of Riga Teacher Training and Educational Management Academy's *10th International Young Scientist Conference*, pp. 15-23. Riga: Riga Teacher Training and Educational Management Academy.

Jankovic, A. & Novak, I. (2019). Chess as a Powerful Educational Tool for Successful People, In: Tipurić, Darko Hruška, Domagoj (Ed.): *7th International OFEL Conference on Governance, Management and Entrepreneurship: Embracing Diversity in Organisations*. April 5th - 6th, 2019, Dubrovnik, Croatia, Governance Research and Development Centre (CIRU), Zagreb, pp. 425-441.

Kazemi, F., Yektayar, M., & Abad, A.M. (2012). Investigation the impact of chess play on developing meta-cognitive ability and math problem-solving power of st https://doi.org/10.1016/j.sbspro.2012.01.056udents at different levels of education. *Procedia - Social and Behavioral Sciences, 32*, 372-379. DOI: https://doi.org/10.1016/j.sbspro.2012.01.056

Levesque, R. (2014). *Social Reasoning*. New York: Springer New York. DOI 10.1007/978-1-4419-1695-2_610.

Lianguzova V. (2021). Personality and features of metacognition and perception of everyday life. *European Psychiatry. 2021;64*(S1):S442-S442. DOI:10.1192/j.eurpsy.2021.1180

Livingston, J.A. (2003). *Metacognition: An Overview*. Retrieved from https://www.researchgate.net/publication/234755498_Metacognition_An_Overview

Meloni, C. & Fanari, R. (2021). Does Chess Training Affect Meta-Cognitive Processes and Academic Performance?. In: Ifenthaler, D., Sampson, D.G., Isaías, P. (eds) *Balancing the Tension between Digital Technologies and Learning Sciences. Cognition and Exploratory Learning in the Digital Age*. Springer, Cham. DOI: https://doi.org/10.1007/978-3-030-65657-7_2

Mikhaylova, I. & Makhov, A. (2018). Using Chess Potential For Improving Welfare Of People With Limited Health Capacities. In I. B. Ardashkin, N. V. Martyushev, S. V. Klyagin, E. V. Barkova, A. R. Massalimova, & V. N. Syrov (Eds.), *Research Paradigms Transformation in Social Sciences, vol 35. European Proceedings of Social and Behavioural Sciences* (pp. 888-899). Future Academy. DOI: https://doi.org/10.15405/epsbs.2018.02.105

Paré, G., Trudel, M.-C., Jaana, M., & Kitsiou, S. (2015). Synthesizing information systems knowledge: A typology of literature reviews. *Information & Management, 52*(2), 183–199. DOI: https://doi.org/10.1016/j.im.2014.08.008

Ramdhani, A., Ramdhani, M.A., & Amin, A.S. (2014). Writing a literature review research paper: A step-by-step approach. *International Journal of Basic and Applied Science*, *Vol. 03*, No. 01, 47-56. Retrieved from http://digilib.uinsgd.ac.id/5129/1/08IJBAS%283%29%281%29.pdf

Ramlakhan, N.E. (2012). *A Philosophical Reflection on Mirror Neurons: How Mirror Neurons Support Simulation Theory*. Retrieved from https://carleton.ca/cognitivescience/wp-content/uploads/Ramlakhan.pdf

Richardson, S.K. (2015). *What does it means to strengthen theoretical links?* Retrieved from https://www.researchgate.net/post/What-does-it-means-to-strengthen-theoretical-links

Romanova, I., Vasylieva, M., & Podberezskyi, M. (2018). Chess therapy as a new trend in training of future social pedagogues. *Journal of Physical Education & Sport, 2018, Vol 18*, p1820. DOI: 10.7752/jpes.2018.s4266

Sala, G. & Gobet, F. (2017). Does chess instruction improve mathematical problem-solving ability? Two experimental studies with an active control group. *Learn Behav 45*, 414–421 (2017). DOI: https://doi.org/10.3758/s13420-017-0280-3

Singh, AR. & Singh, SA. (2011). Brain-mind dyad, human experience, the consciousness tetrad and lattice of mental operations: and further, the need to integrate knowledge from diverse disciplines. *Mens Sana Monogr*. *9*(1), 6-41. DOI: https://doi.org/10.4103%2F0973-1229.77412

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research, Volume 104*, 333-339. DOI: https://doi.org/10.1016/j.jbusres.2019.07.039

Stattner, E. & Collard, M. (2012). Social-Based Conceptual Links: Conceptual Analysis Applied to Social Networks, *2012 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*, 25-29. DOI: 10.1109/ASONAM.2012.15.

Steinhaeuser, K. & Chawla, N. V. (2010). Identifying and evaluating community structure in complex networks. *Pattern Recognition Letters, Volume 31,* Issue 5, 413-421. DOI: https://doi.org/10.1016/j.patrec.2009.11.001 .

Tachie, S. A., & Ramathe, J. M. (2022). Metacognition application: the use of chess as a strategy to improve the teaching and learning of mathematics. *Education Research International*, *2022*(1), 6257414. DOI: https://doi.org/10.1155/2022/6257414

Templier, M. & Paré, G. (2015). A framework for guiding and evaluating literature reviews. *Communications of the Association for Information Systems, 37*(6), 112–137. DOI: https://doi.org/10.17705/1CAIS.03706

Tolman, A. (2020). *How Metacognition Can Foster Inclusivity in the Classroom*. Retrieved from https://www.improvewithmetacognition.com/how-metacognition-can-foster-inclusivity/

Tomé, E., Godinho, C., & Lopes, A. J. (2023). Chess as a Way of Inclusion of Prisoners: A Portuguese Experience. In S. Gonçalves, P. Figueiredo, E. Tomé, & J. Baptista (Eds.), *Developing Diversity, Equity, and Inclusion Policies for Promoting Employee Sustainability and Well-Being* (pp. 257-269). IGI Global. https://doi.org/10.4018/978-1-6684-4181-7.ch014.

Vasylyeva-Khalatnykova, M. O., Chuiko, O., Bakhov, I. S., Ternopilska, V., & Chernukha, N. (2021). Social Rehabilitation Practices of Inclusion. In *The Educational Process In Working With Children With Disabilities. Propósitos Y Representaciones, 9*(SPE3), e1188. DOI: https://doi.org/10.20511/pyr2021.v9nSPE3.1188

Watt, J. H. & van den Berg, S. (2002). *Research Methods For Communication Science*. Retrieved from http://www.cios.org/readbook/rmcs/rmcs.htm .

Zascerinska, J. (2022). TVET Teacher Training in South Africa: Literature Review. *Society. Integration. Education. Proceedings of the International Scientific Conference. Volume I*, 295-304. DOI: https://doi.org/10.17770/sie2022vol1.6816

Леонтьев, А. Н. (1982). Вступительная статья. In: Л. Выготский. *Собрание сочинений*. Москва: Педагогика.

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IMPLEMENTING CLINICAL LEARNING IN HEALTH CARE STUDIES IN HIGHER EDUCATION INSTITUTIONS OF LATVIA: THE STUDENT PERSPECTIVE

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Abstract. *The purpose of this study was to disclose the opinions of the students on the implementation of clinical learning in health care studies in Latvian higher education institutions (HEIs). The study focusses on the awareness, evaluation, and recommendations of students for the effective adoption of clinical learning in their curricula. The volunteer sample (N=41) was composed of students from two HEIs (82% women) mostly from aesthetic cosmetology and medical massage programmes. A mixed-type structured questionnaire was used to collect the data. To analyse the data, the integration of thematic analysis of qualitative data with the frequency analysis of the data elicited by quantitative questions was applied. The students admitted that clinical learning is implemented in their curricula and explained it as the training in knowledge and practical skills in the workplace. The development of theoretical knowledge, practical skills, and communication with experienced tutors was recognised as the greatest benefit, while the lack of time for this study form was observed as the major hindrance to clinical learning. It was also recommended to prepare clinical tutors for pedagogical work, improve the availability of teaching materials, and increase the opportunities to deal with clinical practice situations. Students also stressed the need for feedback from clinical teaching lecturers, experience of different clinical situations, and support of the team during clinical learning. The results of the given exploration coincide with the results of similar studies conducted in other countries, indicating that experience in the clinical environment and practical work during clinical learning ensure the best study results for future healthcare professionals. The results of this pilot study will pave the way for a larger study on the topic and will have an impact on the implementation of clinical learning in health care curricula in Latvia.*
Keywords: *clinical learning; health care studies; students' views*

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Introduction

Taking into account trends in the healthcare sector and changes in the regulatory framework for the preparation of future medical professionals, European HEIs have been assigned an increasingly important role to work-integrated learning. This type of learning is becoming increasingly important in health care studies in HEIs of Latvia. For example, as a result of the reform of nursing education, at least half of the studies must later take place in a clinical environment in the form of clinical studies (Latvijas Vēstnesis, 2019). Similar changes are expected in the professional training of midwives, physician assistants and other medical practitioners (Latvijas Vēstnesis, 2017). While prospective physicians and nurses involved in general health care participate in work-based studies for the entire period of their training, a number of students in other health care professions find themselves in real work conditions only during internships. This situation has led to a review of the educational processes of medical professionals in Latvia.

The regulatory framework of the Republic of Latvia stipulates that medical professionals have medical education and are involved in medical treatment (Latvijas Vēstnesis, 1997). Besides primary healthcare providers in Latvia, such as physicians, nurses, and medical assistants, there are several secondary healthcare professions: masseur, podiatrist,

beauty specialist in cosmetology, etc. Until now, the clinical environment in Latvian HEIs has been used only within the framework of work experience placement or not at all. After ten years of stability, the academic years 2020 - 2023 in the preparation of medical professionals in Latvia was marked by the update of professional standards for a number of healthcare professionals, for example, General Care Nurses, Biomedical Laboratory Assistants, Masseurs, Social Caregiver, Physician's Assistant, Beauty Specialist in Cosmetology, Podiatrist, etc. (Valsts izglītības satura centrs, 2022). The standards define the level of acquisition of basic skills and competencies for each profession, which are now complemented by transversal competencies necessary for personal fulfilment, active citizenship, social integration, and employment in the knowledge society in all spheres of life. Transversal skills include communication, self-knowledge, self-management, cooperation and participation, critical thinking and problem solving, digital and media literacy, and the ability to work with information (Krūmiņa & Mihailovs, 2020).

The end of 2022 in the Latvian health care education was marked by the amendments to the Vocational Education Law on the specialisation of professional HEIs. They require, among other things, colleges, in cooperation with industry employers, to implement work-based learning in order to rapidly meet the requirements of the labour market for the preparation of human resources (Latvijas Vēstnesis, 2022). In light of these changes, educational institutions had to review several curricula in the healthcare field to improve their content and teaching approaches and update the forms and methods of study. To ensure work-based studies for students in medical education and those who plan to participate in medical treatment, in other words, to prepare medical professionals, the form of clinical studies must also be used.

In general, work-based professional education is considered an effective and suitable form of study to improve the qualification of the healthcare team and to involve students in the conditions of a real work environment (Deatrick et al., 2015). Unlike traditional studies, clinical learning takes place in a complex social context. Students must combine academic knowledge and professional skills with cognitive, psychomotor, and affective skills in real work conditions. The objective of clinical education is the acquisition of knowledge and skills necessary for the development of critical thinking and beliefs (Dafogianni, Alikari, Galanis, Gerali, & Margari, 2015). Participation of students in professional socialisation and patient care is an overriding need to prepare competent health professionals (Nordquist et al., 2019). This conclusion has been reached in studies on the need for a clinical environment to prepare medical professionals, the peculiarities of teaching and learning in such environment, clinical competencies, etc. (Ramani & Leinster, 2018; AlHaqwi & Van der Molen, 2010). Specialist training should be synoptic, understandable, clear, and based primarily on practical examples in the clinical environment. It also needs to be grounded on the principles linking theory and practice (Janusheva, Pejchinovska, Dimitrija, & Talevski, 2018). By developing the knowledge acquired in theoretical classes into abilities and attitudes, students master their clinical competence (Alnaami, Haqwi, & Masuadi, 2022).

Although changes in the regulatory framework in Latvia have a strong impact on the preparation of certain medical practitioners, the introduction of clinical training in the curricula of several other future healthcare professionals is usually based only on a decision of the head of the HEIs, curriculum developers, and responsible employees without legal justification. Quality education is designed in a balance between the autonomy of the educational institution and the state's obligation to guarantee the requirements specified in the educational standards. However, a high-quality clinical environment is possible only in the case of implementing tripartite cooperation, where the educational institution, the student, and the medical institution play an equally important role. Representatives of the working environment, when admitting future specialists, must be knowledgeable and competent in

terms of the content of education within the framework of the specified part of the studies. Meanwhile, the educational institution should aim to prepare specialists that meet the requirements of the labour market, also considering the recommendations of students. Educational institutions must create a student-centred clinical learning environment. This can be done by clarifying the views of the students and developing research-based recommendations for the integration of clinical learning into the studies. By implementing these recommendations, we can increase the quality of the given curriculum, improve the image of the educational institution, and promote public health in general. However, even permanent integration of the work environment into the study process does not yet guarantee the quality of training. Studies have shown that this quality can be influenced by many factors, including the student and his personality, the teacher of the clinical environment and his skills, the department staff and his collaboration, personal relationships between students, patients and other staff, the attitudes of the staff toward students, the physical fitness of students, etc. (Parvan et al., 2018). Researchers from Greece, Italy, Australia, and various Asian countries have identified factors determining the effective clinical environment suggested by students, such as the quality of supervision by teaching staff, contact with different clinical experiences, feedback from clinical tutors, time spent in clinical training (its duration), etc. (Dafogianni et al.,2015; Parvan et al.,2018; Croxon & Maginnis, 2009; Serena & Brugnolli, 2009).

For Latvian HEIs to promote the preparation of professionals meeting the requirements of the labour market in the healthcare sector, a similar study is necessary among Latvian students. Using a mixed-type structured questionnaire, this type of study could provide both a broad and deep understanding of the views of aspiring health professionals in relation to clinical learning. Therefore, based on the above mentioned, the objective of this study is to explore the opinions of students on the implementation of clinical learning in health care studies in Latvian HEIs. The questionnaire will provide answers to the following questions:

RQ1 What is the students' awareness of the clinical form of studies, and how do they describe this form in their own studies?

RQ2 How do students describe the benefits and challenges of clinical learning?

RQ3 How do students assess the factors that influence clinical learning suggested by researchers?

RQ4 What are the students' recommendations for the continued implementation of clinical learning and teaching?

A mixed-type structured questionnarie was used to collect the data. To answer the research questions, the integration of thematic analysis of qualitative data with the frequency analysis of data elicited by quantitative questions was applied.

This empirical study was conducted as a pilot study for the doctoral thesis 'Implementation of clinical studies in health care curricula in Latvian HEIs'. The results of the given study will provide information on the students' views on clinical learning, which will inform the design of the clinical learning implementation model in the healthcare curricula of Latvian HEI.

Methodology

At the beginning of the study, Latvian HEIs willing to participate in the study were identified. The choice of specific universities was determined by the daily interaction of researchers with students of these institutions, as well as educators and curricula developers. Two small HEIs (the number of students in total is about 380), which implement health care studies, agreed to join the research. In the description below, these HEIs are called School 1 (65% of the participants) and School 2 (35% of the participants), respectively.

A total voluntary sample (N = 41) included health care students (82% female) of different study years 18-64 (M=34; SD=4.68). Of all research participants, 35% represented the first year of study, 44% the second year of study, 13% the third year of study, and 6% the fourth year of study, 2% did not answer the question. The majority of the sample represented programmes of aesthetic cosmetology (38%) and medical massage (38%). Students in the Nursing (12%), Podology (9%) and Medical Treatment (3%) programmes were represented in smaller numbers. The responses of the students of two HEIs were evaluated as equivalent, since both institutions have similar admission criteria and implement at least two of the study programmes represented in the responses.

The ethical approval for the study has been provided by the Ethics Committee for Humanities and Social Sciences Research of the University of Latvia. For the conduct of the survey, permission was received from the heads of the Health Care study programmes of the participating universities. The survey was sent electronically to student emails with an explanation of the context, purpose, research procedure, and ethical issues of the survey. The students were invited to complete the survey and return it to the researchers no later than two weeks after receiving it. In the introductory part of the survey, the students were assured of the confidentiality and anonymity of the data. Responses received electronically were stored in a blocked file with access to the data only by researchers. Data collection was carried out in September and October 2023.

Materials and Data Analysis

Research data were collected using a mixed-type structured questionnaire consisting of five parts: 1) an introduction that outlines the essence of the study, explains the terms and purpose of the study, and provides the contact details of the researchers; 2) the principles of research ethics; 3) instructions to complete the questionnaire; 4) sociodemographic data survey (age, gender, HEI, study programme, study year, current level of studies); 5) the main part of the survey, consisting of six qualitative and two quantitative questions. The questions of the main part of the survey were designed based on the studies mentioned above and the set of research questions.

The six qualitative questions of the survey were designed to clarify the awareness of clinical learning in students, the positive and negative dimensions of this form of studies, suggestions for improvement, and factors that would contribute to the effectiveness of clinical learning. One of the quantitative questions (using four-point Likert scale) allowed one to verify the implementation of clinical training in the study programme represented by the student. The other (using five-point Likert scale) asked to evaluate six factors related to effective clinical learning: *quality of supervision by the teaching staff, opportunity for various clinical experience, feedback from clinical trainers, duration of clinical training, communication and support of the team (trainers and staff of the clinical environment) during clinical training, student motivation for clinical learning*. These six factors were borrowed from studies, recognising them as the most significant aspects ensuring the effectiveness of the clinical work environment (Parvan et al., 2018; Croxon & Maginnis, 2009; Serena & Brugnolli, 2009; Masha, Malana, Blitza, & Edwardsa, 2009). Thus, RQ1 was answered by qualitative and quantitative questions of the questionnaire, RQ2 was answered by qualitative question of the questionnaire, RQ3 was answered by qualitative and quantitative questions of the questionnaire, while RQ4 was answered by qualitative questions of the questionnaire.

Initially, data analysis was performed separately for qualitative and quantitative data. Quantitative data was collected and analysed by percentage analysis of response rates, while qualitative data was analysed using thematic analysis (Braun & Clarke, 2006). The answers to each research question were then compiled by integrating a thematic analysis of the relevant

qualitative questions with the quantitative results (percentage). In the presentation of the results, the answers will be illustrated with quotes from the student responses (in italics).

Results and Discussion

The study results will be presented in line with the research questions and will reflect the students' understanding of clinical learning in general and in their educational programme in particular, their views on the challenges and advantages of clinical learning, the evaluation of factors that affect clinical learning, and recommendations for more effective clinical training organisation. The profile of the study results is similar for the students in School 1 and School 2, confirming the implementation of a unifying approach to clinical learning in these educational institutions.

Awareness of the clinical studies of the students and description of their own studies

When describing clinical training, students emphasise that such training is based on their acquired knowledge, skills, and competencies. All students indicated that clinical training is the implementation of practical skills or practice in a medical institution or other equivalent conditions of the working environment typical for the relevant profession under the guidance of experienced specialists. This suggests that students understand the nature of clinical learning and are aware that such studies require the application of knowledge and skills in a practical setting. The perspective of the students coincides with the conclusions of other studies that, in the opinion of the students, this part of the studies allows them to develop the knowledge gained in lectures into abilities and attitudes, contributing to the perfection of clinical competence (Alnaami, Haqwi, & Masuadi, 2020). The answers of the students indicate that clinical training is implemented at least in two Latvian HEIs and the students understand its essence and nature of actions. A similar conclusion was reached in a study conducted in the United Kingdom on quality indicators of the clinical learning environment, suggesting that students perceive clinical training as a process of developing various elements such as role modelling and attitude towards patients and colleagues (Roberts, Cleland, Strand, & Johnston, 2018). Studies show that students' perception of clinical learning and its environment influences their ability to achieve the required outcomes of studies (Mitchell et al., 2005; Hoff, Pohl, & Bartfield, 2004). Thus, examining students' awareness of the nature of clinical learning can be viewed as an important prerequisite to design a model for the implementation of clinical learning in health care study programmes in Latvian HEI. At the same time, students' responses (35%) read that clinical learning is implemented only in clinical study courses or professional study courses delivered in the field, i.e. only in the segment of studies ensuring the acquisition of professional manipulations. This, in turn, leads to the conclusion that the acquisition of non-clinical courses in examined HEIs has usually not been provided through clinical training. The authors believe that clinical training should not be limited to studies related to the acquisition and improvement of professional skills and abilities. To prepare efficient future medical professionals, acquisition of at least some of the non-clinical study courses should also be provided in the clinical setting. This view of the authors coincides with the suggestions from other clinical education researchers that academic education, which is based on theoretical and conceptual references to philosophy, including the acquisition of skills, develops the clinical competence of the student and helps to master the new perspectives on their clinical career (Vieira, Batista, Franco, & Silveira, 2011).

The ideas mentioned above can be illustrated by the quantitative results of the questionnaire. Most of the respondents (62%) have indicated that *clinical training is more likely to be implemented in their study programme, as several study courses are delivered in*

the form of clinical training. A relatively large number of respondents (24%) believe that *clinical training is rather not implemented in their study programme, because only one/two study courses are delivered in the form of clinical training, or so far, clinical training has not been implemented within the framework of the respective program* (14%). The results of the last answer are obtained from students in the first semester of the first year of study. Clinical studies are often introduced in health care study programmes only in the second semester of the first year or in the second year of study. Consequently, it is inappropriate to conclude that clinical training is not carried out in the relevant study programme. Not a single student has indicated that a *large amount of study time is devoted to clinical learning*.

Describing clinical training in their study programmes, the majority of students (86%) provided a positive overall assessment, indicating that *clinical training is at the highest level or during clinical training I realised that I really want to become a representative of the healthcare industry, or clinical training is organised according to the requirements of the study course and provides all the necessary skills*. At the same time, most future healthcare professionals questioned (74%) have emphasised the insufficient duration of clinical training in their chosen programme: *The time allotted in the clinical setting is not enough to acquire skills and develop competencies*. These findings coincide with the results of other European studies indicating that from the point of view of students, the time spent on clinical training should be increased (Croxon & Maginnis, 2009). The answers obtained in this study also complement the conclusions of several other studies that the insufficient time allotted for studies in a clinical setting is one of the reasons for 'reality shock' or a situation in which graduates of health care studies often are not equipped to face difficult situations in clinical practice (Mæland, Tingvatn, Rykkje, & Drageset, 2021; AlHaqwi & Van der Molen, 2010). Based on the results of a given study and the conclusions of other researchers, the authors suggest that the duration of clinical training is one of the most important factors affecting the effectiveness of this training, which should be considered in the model for the implementation of clinical training in health care study programmes in Latvian HEI.

Student opinions on the benefits and challenges of clinical learning

Most of the responses (91%) suggested the development of theoretical knowledge and practical skills as one of the benefits of clinical learning. Communication with an experienced tutor and the opportunity to ask him questions, thus receiving answers from a real-life practitioner, is a significant advantage of clinical learning for a large share of students (38%). In answering this question, the students repeatedly mentioned teamwork and building working relationships with the team and patients (21%). A smaller number of students (15%) believed that adaptation to the real work environment and getting to know its infrastructure are important benefits of clinical learning. Furthermore, individual responses, indicating *the possibility of educating patients, the opportunity to develop and implement a proper disinfection plan*, and *building self-confidence*, were emphasised as the strong points of such training. The students' responses complement the results of other similar studies, in which the students emphasise the benefits of clinical training, such as individual supervision by teachers, the student's own responsibility for applying his knowledge to practice, the ability to participate in the solution of various clinical problems during studies, and teamwork (Johansson, Vardinghus-Nielsen, & Nøhr, 2022; Tore, Hall-Lord, Wangensteen, & Ballangrud, 2022). Other studies indicate that clinical learning can affect student confidence, sense of respect and belonging to the professional team, as well as motivation for professional self-development, organisational skills, and readiness to qualify in the speciality (Dobrowolska, Mcgonagle, Jackson, & Palese, 2015). Entrusting decision making and taking critical responsibility for patient care to a student is at the heart of clinical learning. Such careful and deliberate decisions mould the understanding of the nature, expected risks, and

difficulties of the future profession (Olle et al., 2016). Based on the answers given by the students, it can be concluded that clinical learning is a major component of the learning experience of the students.

It is generally accepted that clinical training has many advantages in clinical education. This is confirmed both by the above-mentioned studies and by the answers provided by the students in this study. Clinical training provides an opportunity to acquire clinical knowledge, develop clinical and communication skills, playing an increasingly important role among students, trainees, and practitioners. However, clinical training is related to the series of professional requirements that must be carefully identified and addressed accordingly (Duarte et al., 2022). In the following outline of challenges associated with clinical learning, they will be listed and described in descending order, starting with the most frequently mentioned problems – lack of time allotted for clinical training and ending with large groups of students during clinical training.

In terms of the challenges observed during the acquisition of clinical training, the students most often (44%) mentioned the insufficient time for this training, indicating that clinical training is generally organised as some practical classes. The students explain that the allotted time is insufficient to master certain procedures and the students need more time to fully embrace the clinical experience. Additionally, the lack of educators' competence is often mentioned (29%) in students' responses, indicating that clinical tutors are often good specialists in the field, but lack the know-how to transfer their knowledge to students. The students comment that *in clinical training, students often find themselves in an environment where the tutor performs his/her daily duties in a medical institution simultaneously with teaching; thus, there is a short time left to carry out high-quality training,* as well as *students require teaching, not showing*. It is noted that in such situations, students are often forced to acquire the relevant skills even through self-study. Quite a large number of students (26%) mention the attitude of clinical staff (admitting that students often feel a tense and disturbing attitude from other employees of a given medical institution), lack of available literature and teaching materials (21%), and patient attitudes (18%) as obstacles to effective clinical learning. In their responses, the students reveal that *patients are reluctant to allow or do not tolerate young specialists' care.* Additionally, a pedagogically equipped clinical environment appears to be a problem from the point of view of the students (15%). In a real work environment, future specialists do not feel comfortable if they lack the space and time to ask questions, take notes, and analyse the situations they have seen. Insufficient theoretical knowledge of students (12%), consequences of Covid-19 pandemics (9%), which have completely or partially prevented several students from attending clinical training in a medical institution, and large groups of students, limiting the performance of individual tasks (6%), were also cited as obstacles and problems. Most of the questionnaire responses indicate problems that arise directly in the clinical environment or in their educational institution. However, students have also highlighted the obstacles caused by their own attitude, lack of learning motivation (12%), and reasons for their absence due to illness or other (often work-related) reasons (15%). The answers to the question on clinical learning problems also suggested a positive view of the situation, indicating the lack of obstacles and problems during clinical training (18%). In the relevant part of the studies, the *students have participated in appropriate practice with adequate time allotted and a supportive team* (15%). However, such answers are more indicative for the internship than for the clinical form of studies within the framework of certain study courses.

Researchers, identifying clinical learning problems through the perspectives of students, admit that the clinical experience of students depends on the quality of the clinical environment, determined by all factors mentioned by students, with a particular emphasis on the role of clinical tutors in the preparation of the future healthcare professional. In the

literature, the lack of an efficient professional tutor in clinical training is described as one of the basic problems (Dafogianni et al., 2015; Parvan et al., 2018; Croxon & Maginnis, 2009; Serena & Brugnolli, 2009). Identification of the above mentioned problems in the responses of the students in the given research and also in other studies clearly indicates the main factors that affect the effectiveness of clinical training, which should be included in the model for the implementation of clinical training in health care studies in Latvian HEI.

Student assessment of factors that affect clinical learning

The formulations of potential factors that affect clinical learning (from quantitative questions of the questionnaire) will be inserted in italics. Prospective healthcare professionals (79%) agree that the most important requirement for effective clinical training would be *feedback from clinical trainers*.

A little less number of respondents (71%) expressed their opinion that *contact with different clinical experience, communication in the team (university teachers and clinical environment),* and *support during clinical training* would increase the quality of education. Almost as important (65%) for students is *their own motivation for clinical learning* and *the time spent in clinical training (duration)*. The opposite opinion is held by 4 students (12%), who completely disagree with a statement of their own motivation. A small number of future professionals (9%) do not believe that the time spent in clinical training affects the effectiveness of the training.

Giving their opinion on additional factors necessary for effective clinical training, the students indicated that they need *competent and experienced teachers in the relevant field, more complex and detailed work tasks, an individual approach to each student*, and *greater availability of teaching materials during clinical training*. Other responses amplified or repeated the factors already proposed by the researchers. This survey question was left unanswered by 3 students (9%).

The findings of the presented study confirm the evidence provided by other medical education researchers that the quality of the clinical environment and the results of clinical learning are influenced by many factors, including the student and his personality, the clinical environment trainer and his skills, the department staff and his cooperation, the physical fitness of the student and other factors (Alnaami et al., 2022; Parvan et al., 2018). The results of the survey show that students are well aware of the nature of clinical learning and are able to properly discern the benefits and challenges of clinical learning. At the same time, students want to increase the duration of clinical learning, diversify the clinical experience during their studies, and receive feedback from the tutors. Although the curricula of health care studies envisage different methods of evaluating students in the clinical environment, research has shown the lack of this component of studies or the formal implementation of the evaluation. Students, once in their work environment, perform the work tasks of the practising specialist. Thus, students are deprived of the opportunity to identify their errors and inaccuracies, which, in turn, leads to the process of self-education, which in the future may negatively affect patient care. The results of medical education research show that the feedback and evaluation process during clinical training is especially important to students (Dafogianni et al., 2015; Croxon & Maginnis, 2009).

Student's recommendations for further implementation of clinical learning and teaching

The respondents supplemented the benefits and challenges described by clinical learning with their recommendations for necessary improvements in the implementation of clinical training. Among them, the suggestion of increasing *the time allotted for clinical training* was the most common (76%). Approximately half of the sample believe that it would

be necessary to increase the diversity of clinical experience or *to give the student greater opportunity to meet real patients and their complaints* (47%), fewer students suggested conducting training and preparing clinical environment tutors for pedagogical work (33%), to ensure greater availability of teaching materials (26%), to offer several clinical learning environments (12%), emphasising the increase in the choice of internship places, as well as to improve the communication of the clinical team with students (9%). The opinion on the improvements necessary for clinical training was also given by first-year students and students indicating the lack of experience in clinical training. Only one student states that *it is difficult to judge because they do not yet know the course of these studies*. A fairly large number of students (18%) are satisfied with the current situation during clinical training and do not believe that any improvements would be necessary in this study process.

Despite the problems identified by this small sample of students and also confirmed by the findings of other researchers, clinical training is a tool of medical education that affects learning outcomes, student preparation for practice, and their satisfaction with the chosen profession. This conclusion obtained by the authors coincides with the opinion expressed by students in other clinical education studies that it is an experience in the clinical environment and practical work during clinical training that ensures the best learning outcomes for future health care providers (Johansson et al., 2022).

Conclusions

The purpose of the study has been achieved by finding students' perspectives on the effective implementation of clinical health care studies in Latvian HEIs. The results of the study have provided answers to research questions, intended to clarify the awareness of clinical learning of students and the characteristics of such training in the educational programme they represent, to identify the views of students on the benefits and challenges of clinical learning, and to provide an opportunity for students to give recommendations for the effective implementation of clinical learning.

In total, the results of the study show that students are aware of the nature of clinical teaching. Students describe this form of study as the application of knowledge and practical skills in a medical institution or other equivalent working environment under the guidance of experienced specialists. Students mention the development of theoretical knowledge and practical skills, as well as communication with experienced clinical tutors, as the greatest benefits of clinical learning. Among the most significant issues, respondents indicated the short duration of this part of the study process. For the further implementation of clinical training, the respondents recommend a longer engagement with the clinical environment, pedagogical training, and preparation of clinical tutors, a greater availability of teaching materials for work procedures, greater access to real patients and encounter with their complaints.

This study has provided qualitative and quantitative results that in several respects are quite similar to those obtained in previous studies. Future healthcare professionals have indicated that their study programme implements clinical training, since several study courses are implemented in the form of clinical studies. Students consider clinical training an integral part of their studies, indicating the need to enhance the intensity of clinical training in the curriculum of their studies. Therefore, it seems that the time allotted for clinical training in health education programmes in Latvian HEIs should be increased from the point of view of students. At the same time, it is emphasised on the part of students that clinical lecturers often are experienced specialists in the field; though, they need a better understanding how to transfer their knowledge and skills to students. Consequently, it can be concluded that HEIs should invest in the development of the pedagogical competence of clinical tutors. Based on

the results of the presented study, it would be optimal to introduce practical recommendations such as the provision of regular feedback from clinical tutors, diversification of student clinical experience, ensuring a more complex and detailed performance of work tasks, as well as improving communication and support from staff (in university and clinical environment) by applying a more individual approach to each student. At the same time, universities should promote greater availability of teaching materials during clinical training.

Among the limitations of this pilot study, one can cite a small sample of students from only two universities, leading to confined results. That's why the conclusions in the article cannot be generalised and applied to all Latvian universities offering healthcare programmes. Furthermore, only volunteers participated in the study, which may indicate the readiness of more positively minded students to provide their answers. At the same time, the study involved a non-homogeneous sample, which included students of different study years and specialities, which may indicate a contextualised understanding of clinical teaching among students. Among the limitations of the study is the disproportionate gender distribution, with a primarily women participation.

Some of the future research directions on this topic would be related to improving the sample surveyed in the same way as in the current study and triangulation of student data with the opinions of teachers and experts/employers of health care programmes on clinical learning. The results of this pilot study will ground the ideas in relation to further research and will be applied as preliminary results for a broader study on the implementation of clinical learning and the factors influencing clinical learning in health care curricula, thus contributing to the faster and more effective entry of young professionals into the health care system.

References

AlHaqwi, A., & Van der Molen, HT. (2010) Achieving clinical competence. Saudi *Medical Journal, 31(4*), 357-358.

Alnaami, N., Haqwi, A.A., & Masuadi, E. (2022). Clinical learning evaluation questionnaire: a confirmatory factor analysis. *Advances in Medical Education and Practice*, *11*, 953-961. DOI: https://doi.org/10.2147/AMEP.S243614

Alnaami, N., Haqwi, A.A., & Masuadi, E. (2020). Clinical learning evaluation questionnaire: a confirmatory factor analysis. *Advances in Medical Education and Practice, 1*, 953-961. DOI: https://doi.org/10.2147/AMEP.S243614

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3(2).* 77 - 101.

Croxon, L., & Maginnis, C. (2009). Evaluation of clinical teaching models for nursing practice. *Nurse Education in Practice 9(4*), 236-243. DOI: https://doi.org/10.1016/j.nepr.2008.06.004

Dafogianni, C., Alikari, V., Galanis, P., Gerali, M., & Margari, N. (2015) Nursing students' views on their clinical placement in pediatric hospitals of Athens, Greece. *International Journal of Caring Sciences*, *8(3)*, 673. Retrieved from: http://internationaljournalofcaringsciences.org/docs/19_Dafogianni_original_8_3.pdf

Deatrick, J. A., Lipman, T. H., Gennaro, S., Sommers, M., de Leon Siantz, M.L., Mooney-Doyle, K., Hollis, G., & Jemmott, L. S. (2015). Fostering health equity: clinical and research training strategies from nursing education. *Kaohsiung Journal of Medical Sciences, 25(9),* 479-485. DOI: https://doi.org/10.1016/S1607-551X(09)70554-6

Dobrowolska, B., Mcgonagle, I. M., Jackson, C., & Palese A. (2015). Clinical practice models in nursing education: implication for students' mobility. *International Nursing Review, 62(1),* 36-46. DOI: https://doi.org/10.1111/inr.12162

Duarte, I., Costa, C., Cristina, S., Santos, C., Gil-Santos, I., & Environ, J. (2022). Medical education: patients perspectives on clinical training and informed consent. *International Journal of Environmental Research and Public Health, 19(13),* 7611. DOI: https://doi.org/10.3390/ijerph19137611

Hoff, T. J., Pohl, H., & Bartfield, J. (2004). Creating a learning environment to produce competent residents: the roles of culture and context. *Academic medicine: journal of the Association of American Medical Colleges*, *79*(6), 532–539. DOI: https://doi.org/10.1097/00001888-200406000-00007

Janusheva, V., Pejchinovska, M., Dimitrija, J., & Talevski, J. D. (2018). Students' survey for assessing HE teachers' work – advantages and disadvantages. *Educação, 43(3*), 369-391. DOI: https://doi.org/10.5902/1984644430084.

Johansson, N., Vardinghus-Nielsen, H., & Nøhr, S. (2022) Clinical problem-based medical education: a social identity perspective on learning. *Dansk Universitetspædagogisk Tidsskrift Pædagogiske eksperimenter, 17(33),* 79-96. DOI:10.7146/dut.v17i33.132130

Krūmiņa, A., & Mihailovs, I. (2020). *Izglītības organizācijas pamatjautājumi un izglītošanās iespējas Latvijā*. Rīga: NordLynx.

Latvijas Vēstnesis (1997). Ārstniecības likums. Latvijas Vēstnesis 167/168, 1997. Retrieved from: https://www.vestnesis.lv/ta/id/44108-arstniecibas-likums

Latvijas Vēstnesis (2017). *Konceptuālais ziņojums "Par veselības aprūpes sistēmas reformu"*. Ministru kabineta rīkojums Nr. 394. Rīgā 2017. gada 7. augustā (prot. Nr. 37 34. §). Retrieved from: https://www.vestnesis.lv/op/2017/157.1

Latvijas Vēstnesis (2019). *Par konceptuālo ziņojumu "Par māsas profesijas turpmāko attīstību".* Ministru kabineta rīkojums Nr. 537. Rīgā 2019. gada 29. oktobrī (prot. Nr. 50 25. §). Retrieved from: https://www.vestnesis.lv/op/2019/222.2

Latvijas Vēstnesis (2022). *Grozījumi Profesionālās izglītības likumā*. Latvijas Vēstnesis 2022/187.6. Retrieved from: https://www.vestnesis.lv/op/2022/187.6

Masha, R., Malana, R., Blitza, J. & Edwardsa J. (2009) Improving the quality of clinical training in the workplace: implementing formative assessment visits. *South African Family Practice, 61(6).* 264–272. DOI: https://doi.org/10.1080/20786190.2019.1647639

Mæland, M. K., Tingvatn, B.S., Rykkje, L., & Drageset, S. (2021) Nursing education: students' narratives of moral distress in clinical practice. *Nursing Reports*, *11*, 291–300. DOI: https://doi.org/10.3390/nursrep11020028

Mitchell, M., Srinivasan, M., West, D. C., Franks, P., Keenan, C., Henderson, M., & Wilkes, M. (2005). Factors affecting resident performance: development of a theoretical model and a focused literature review. *Academic medicine: journal of the Association of American Medical Colleges*, *80*(4), 376–389. DOI: https://doi.org/10.1097/00001888-200504000-00016

Nordquist, J., Hall J., Caverzagie, K., Snell, L., Chan, M., Thoma, B., Razack, S., & Philibert, I. (2019). The clinical learning environment. *Medical Teacher*, *41(4*), 366-372. DOI: https://doi.org/10.1080/0142159X.2019.1566601

Olle, C., Hart, D., Ankel, F., Busari, J., Englander, R., Glasgow, N., Holmboe, E., Iobst, W., Lovell, E., Snell, L., Touchie, C., Van Melle, E., & Wycliffe-Jones, K. (2016). Entrustment decision making in clinical training. *Journal of the Association of American Medical Colleges*, *91(2),* 191-198. DOI: https://doi.org/10.1097/ACM.0000000000001044

Parvan, K., Shahbazi, S., Ebrahimi, H., Valizadeh, S., Rahman, A., Jabbarzadeh, F., & Esmaili, F. (2018). Nurses' lived experience of working with nursing students in clinical wards: a phenomenological study. *Journal of Caring Sciences*, *7(1),* 41-45. DOI:10.15171/jcs.2018.007

Ramani, S., & Leinster, S. (2018). AMEE guide no. 34: teaching in the clinical environment. *Medical Teacher*, *30(4),* 347-364. DOI: https://doi.org/10.1080/01421590802061613

Roberts, R., Cleland, J., Strand, P., & Johnston, P. (2018). Medical students' views of clinical environments. *The clinical teacher*, *15*(4), 325–330. DOI: https://doi.org/10.1111/tct.12691

Serena, P., & Brugnolli, A. (2009). Italian nursing students' perception of their clinical learning environment as measured with the CLEI tool. *Nurse Education Today*, *29(8),* 886-90. DOI: https://doi.org/10.1016/j.nedt.2009.05.016

Tore, K., Hall-Lord, M.L., Wangensteen, S., & Ballangrud, R. (2022). Bachelor of nursing students' attitudes toward teamwork in healthcare: the impact of implementing a team STEPPS® team training program — a longitudinal, quasi-experimental study. *Nurse Education Today*, *108*, 105180. DOI: https://doi.org/10.1016/j.nedt.2021.105180

Valsts izglītības satura centrs (2022). *Obligāti piemērojamo profesiju standartu un profesionālās kvalifikācijas prasību (ja profesijai nav nepieciešams izstrādāt profesijas standartu) saraksts.* Retrieved from: https://www.visc.gov.lv/lv/obligati-piemerojamo-profesionalo-kvalifikaciju-saraksts%C2%A0

Vieira, A., Batista, Franco, T., & Silveira, L. (2011). Clinical training and the production care in health and nursing. *Trabalho Educacao Saúde*, *9(1),* 9-24. DOI: 10.1590/S1981-77462011000100002

VIRTUAL REALITY AS A TRAINING TOOL IMPACT ON UPPER EXTREMITY FUNCTION IN CHILDREN WITH CEREBRAL PALSY: SYSTEMATIC REVIEW

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Abstract. *Approximately half of children with cerebral palsy (CP) may sustain dysfunctions in upper-extremity activities, such as reaching, grasping, and manipulation. Moreover, several children with CP experience tightness or weakness in their arms and hand muscles, which can lead to difficulty performing daily tasks such as dressing, feeding, performing in school, playing, or academic tasks such as writing. These limitations can lead to reduced health-related quality of life. Growing interest has been developing interventions for children with CP based on assistive technology like virtual reality (VR). VR-based systems in children with CP mostly focus on the lower extremities and ambulation (e.g., walking activity, balance, gait and gross motor skills). However, new treatment approaches are needed to improve upper extremity functions. This systematic review aimed to determine if VR technology as a training tool can increase upper extremity function for children with Cerebral palsy. This review followed the PRISMA guidelines and a literature search in six electronic databases was carried out from November 2021 to May 2024. The quality of the research was assessed by using the PEDRO scale. The findings show that using VR technology as a rehabilitation tool improves upper extremity function. Conventional therapy can be replaced with VR-based therapy, but more randomized and specific studies on the subject are needed in the future.*
Keywords: *Cerebral palsy, children, Virtual reality, upper extremity function, upper limb function*

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Introduction

Cerebral palsy (CP) is a category of non-progressive neurological disorders that permanently affect sensory-motor capabilities in infancy or early childhood (Ravi, Kumar, & Singhi, 2017). CP refers to a group of disorders that affect a person's ability to move and maintain balance and posture. CP is the most common motor disability in childhood (CDC, 2024). The prevalence of CP over the last 40 years is estimated to have increased from 1.5 to 2.5 per 1000 new-borns (Fandim, Saragiotto, Porfírio, & Santana, 2021).

The child with CP's functioning is affected by various neuromuscular and musculoskeletal impairments. Besides motor functioning, cerebral palsy also affects cognitive, affective, and behavioural performances (Ravi et al., 2017).

Approximately half of children with CP may sustain dysfunctions in upper-extremity activities, such as reaching, grasping, and manipulation. Moreover, several children with CP experience tightness or weakness in their arms and hand muscles, which can lead to structural changes resulting in long-term difficulty in performing day-to-day tasks, such as dressing, feeding, performing in school, and playing, as well as reduced health-related quality of life (Chang et al., 2020, Tonmukayakul et al., 2020). Regarding academic performance, handwriting is often challenging in children with CP and upper-limb issues due to poor visuoconstructive skills, impaired finger sensation, and difficulty coordinating both hands.

These difficulties, seen even in milder cases like unilateral CP, can lead to fatigue and frustration (Fluss & Lidzba, 2020).

Research shows that the more motor functions are affected, the greater the difficulties a child has in participating in the learning process at school. Considering the importance of the philosophy of "inclusive education" and its integration into the education system, schools should consider involving professionals from other fields in the educational system, providing mutual consultation and special training, and adapting the environment for working with children with CP (Netto et al., 2020). The inclusion of healthcare specialists has a significant positive effect on children's physical development and academic performance, and improving health outcomes, school health programs can also improve children's education outcomes as well (Hasan, 2020).

Growing interest has been in developing interventions for children with CP based on assistive technology. One such area of interest is the use of virtual reality (VR) in developing functional independence of motor skills.

VR is defined as "the use of interactive simulations created with computer hardware and software to present users with opportunities to engage in environments that appear to be and feel similar to real-world objects and events" (Chen, Lee, & Howard, 2014). The sessions are provided through a computer-simulated environment where they interact with real-world-like objects and events through sight, sound, smell, and touch. VR technologies vary greatly in terms of immersion, cost, and complexity (Ravi et al., 2017).

VR is a widespread tool in various fields nowadays and rehabilitation, research and assessment are some of them. Use of VR systems can boost motivation due to the variety and novelty of virtual therapy and exercise systems. Additionally, gamification can enhance the fun factor and create new incentives for clients, elevate the self-efficacy, volition, and playfulness. Other benefits of VR systems include the ability to create therapeutic scenarios that are difficult to achieve in the real world, tailor therapy tasks to individual patients, and use the system at home or in different environments, thereby reducing the workload of healthcare professionals (Bateni, Carruthers, Mohan & Pishva, 2024; Reid, 2002). The success of the training process depends on several factors: intensity, repetition, and a goal-oriented and task-specific training program, which are nowadays considered essential in achieving a favourable motor outcome. However, rehabilitation programs tailored to the special needs of an individual child are personnel intensive and, therefore, expensive. Often, limited resources hinder the achievement of optimal therapy conditions and limit the dosages of rehabilitation measures (Chen et al., 2014).

It is also worth noting that the use of the engineer-built system is found to be more effective than using the commercial system. The explanation is that the engineer-built system can meet the children's needs by better-adjusting game difficulty and training goals. On the contrary, commercial systems are restricted to predetermined task difficulties, which are typically too difficult for children with CP. However, the cost of building an engineer-built VR system is generally much higher than that of a commercially available system (Chen et al., 2014).

Numerous studies have explored the use of VR for patient groups like stroke patients, individuals with Parkinson's disease or multiple sclerosis (Bateni, Carruthers, Mohan & Pishva, 2024). Rehabilitation methods using VR based systems in children with CP have mostly focused on gait training, balance and mobility skills, the lower extremity and ambulation, however, new treatment approaches are needed to improve upper extremity functions (Reid, 2002; Fandim, Saragiotto, Porfírio, & Santana, 2021).

The aim of this study was to evaluate the effectiveness of virtual reality as a training tool for improving upper extremity function in children with cerebral palsy, compared to conventional therapy or pre-and post-intervention measurements. The research question

formulated using the PICO framework is as follows: In children with cerebral palsy (P), how does using virtual reality as a training tool (I) compared to conventional therapy or pre-and post-intervention measurements (C) affect upper extremity function (O)?

Methods

This systematic review followed the PRISMA guidelines, and results are reported using the PRISMA checklist.

A systematic literature search in electronic databases was conducted. Data sources were 6 electronic databases - Cochrane Library, PubMed, Web of Science, Scopus, ScienceDirect, and BASE. The search strategy involved checking the title and abstracts of articles, using a combination of Mesh term keywords and phrases: "children with Cerebral Palsy," "Virtual Reality," and "upper extremity function", as well as synonyms, such as "upper limb function," "hand function." Selected keywords were joined by bull operators such as "AND" or "OR."

The following studies were selected for the systematic literature review: randomized clinical trials, single-subject experimental design, and non-blinded retrospective full-text articles in English. No time limit regarding the publication date was applied to the search strategy.

The search strategy was executed by three researchers (MM, UČ and LJ), and all publications from each database were extracted using citation management software Endnote and MS Excel. Any duplicates were removed. Titles and abstracts were screened independently by all three researchers based on the keywords, inclusion, and exclusion criteria. For all potentially eligible studies, full texts were retrieved, and eligibility was assessed by the same three researchers. Any conflict was resolved by discussion.

Articles were considered as potentially eligible if they met the following **inclusion criteria:** children with cerebral palsy, female and male, evaluation of virtual reality technology used for upper extremity function, the inclusion of intervention process, and data of health outcome. Only outcome measures related to upper extremity function were used. **Exclusion criteria:** having prior surgery for spasticity within the past six months and having botulinum toxin injection within the past six months.

The quality of the research was assessed by using the PEDRO scale. This process was done by two researchers (MM and LJ), which limited the impact of bias in this process.

Results

Study selection

The database search found 250 publications that were published from 2007 to 2024; after a full-text review, eight studies were included. The process of searching the studies is shown in *Figure 1*. All the included studies are summarized in *Table 1*.

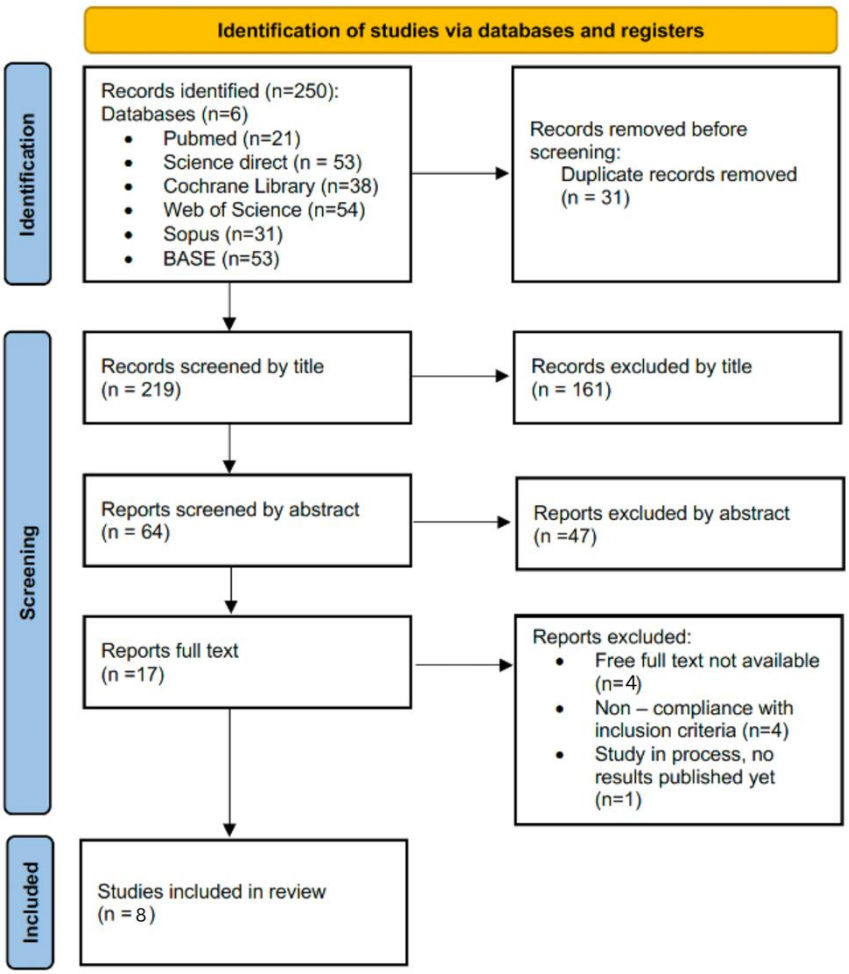

Figure 1 ***PRISMA Flow chart***

In the study by Chang et al. (2020) 17 children with Cerebral Palsy were divided into two groups. The first group of 10 participants did 20 minutes of conventional therapy with 10 minutes of VR therapy, and the second group of seven participants did only 30 minutes of conventional therapy. Both groups performed a total of 16 treatments twice a week for 8 weeks. Clinical outcomes were determined using the Quality of Upper Extremity Skills Test (QUEST) and Pediatric Evaluation of Disability Inventory (PEDI), which was administered before and 8 weeks after the first intervention session. The study showed significant improvement in dissociated arm movement, grasps, weight-bearing, and protective extension in the group that used VR technology as an addition to conventional therapy. The VR group showed significant improvements in all QUEST domains, whereas the second group showed a significant change only in total QUEST scores. Also, the first group demonstrated significantly improved scores in five PEDI domains (i.e., Self-care ($p = 0.017$), Transfer ($p = 0.028$), and Social function ($p = 0.018$) under the functional skills dimension and Self-care ($p = 0.031$) and Transfer ($p = 0.022$) under the caregiver assistance dimension) (Chang et al., 2020).

Chen et al. (2007) in their study evaluated 4 children, ages 8-12, with cerebral palsy – 3 with spastic quadriplegia and a good range of cognitive skills, and a boy with spastic hemiplegia and with mild retardation. A 4-week individualized VR training program (2 hours per week) with two VR systems was applied to all children. The 2-hour intervention time during each intervention week was divided into 45 minutes for the VR-based hand rehabilitation training system and 75 minutes for the commercial VR system. The outcome measures included four

kinematic parameters: movement time, path length, peak velocity, and number of movement units for mail-delivery activities in 3 directions - neutral, outward, and inward. Three children who did not have any intellectual disabilities showed improvements in some aspects of reaching kinematics, whereas participants with mild retardation did not show any. The improvements in kinematics were partially maintained during follow-up, which was done twice – 2 weeks and 4 weeks after the last intervention session (Chen et al., 2007).

Bedair, Al-Talawy, Shoukry, & Abdul-Raouf (2016) in their study had 40 spastic hemiplegic children ages 5-10. Children were divided into two equal groups. The study group of 20 children received an upper extremity program for 60 minutes and an additional 30 minutes of VR training using the X-BOX system. In contrast, the second group, the control group of 20 children, received only an upper extremity therapeutic program for 60 min. Intervention time – 3 times a week. VR training can enhance the active participation of children with motor deficits in most upper extremity activities by considering the child's personality and changing environmental factors. Statistical analysis consisted of paired t-tests, and it shows that object manipulation, visual-motor skills, and upper extremity functions were significantly improved in the study group post-treatment compared to the control group. The rationales for the improvement of object manipulation resulting from conventional therapy and VR are related to the improvement of proximal shoulder stability.

In the case of Do, Yoo, Jung & Park (2016) three children, ages 5, 6, and 7, who were diagnosed with hemiplegic cerebral palsy, played Nintendo Wii as bilateral arm training based on VR. The intervention had 20 sessions, and the game was played for 30 minutes in each session. Results showed that after VR-based bilateral arm training, all the children improved in upper extremity motor skills on the affected sides and bilateral coordination ability. After completion of the intervention, measurements revealed that upper extremity motor skills on the affected side and bilateral coordination ability were better than before the intervention.

Qiu et al. (2015) in their study evaluated nine children ages 7-15 with cerebral palsy using the NJIT-RAVR System for 1 hour, 3 times a week for 3 weeks. Pre to post-test changes in peak supination velocity and kinematic measures were collected during daily performance. Results showed statistically significant improvements in sideways and forward reach as well as hand-to-mouth reach and composite of the three timed reaches, but children demonstrated an inability to keep the endpoint of the robot stable during the supination part of the activity.

A randomized controlled trial by Saussez et al. (2023) studied the semi-immersive virtual device REAtouch effectiveness on motor function improvement compared with the conventional, evidence-based two-week program for children with CP. Forty children with unilateral CP were included in this study. Half of them attended the standard HABIT-ILE program, and the other half – almost 50% of program time was spent practicing in REAtouch sessions. Both groups showed significant improvements in most outcome measures, but this study found no significant differences between them. Tasks to practice were made to stimulate object manipulations, repetition of grasps/release, and bimanual coordination.

One more randomized controlled study was conducted by Fidan & Genc (2023), where participants were 52 children with spastic CP. All participants were randomly divided into the VR group (n = 27) and the control group (n = 25). The mean age of the children was 9 years. In the context of this study, measurements were conducted for several body functions and activities. Regarding upper extremity function, the QUEST scale was utilized, which measures four domains: dissociated movement, grasp, protective extension, and weight bearing. The frequency of sessions was 45 minutes per day, two days a week, eight weeks. Like the previous study, this study shows that both treatment approaches are effective for improving upper extremity functions, but neurodevelopmental treatment (NDT) was superior to VR. Researchers explain this as a technology limitation, as Kinect is not designed for the hand movements required for everyday activities.

In the study conducted by Shih et al. (2023), the effectiveness of constraint-induced movement therapy (CIMT) and Kinect-based CIMT program was compared. It should be noted that the Kinect-based program was implemented in natural environments for children (at homes and schools) and supervised by a specialist. Games in the VR group were made to train arm-reaching, manipulation, and arm-hand tasks (reaching, grasping, releasing, holding, aiming, tracking, flapping, and forearm supination/pronation). Twenty-nine children participated in this study (n = 14 in the Kinect-based group and n = 15 in the therapist-based CIMT group). Kinect-based CIMT demonstrated effects comparable to that of therapist-based CIMT on the affected upper extremity motor control and daily function, so authors suggest that Kinect-based CIMT can be considered an alternative to therapist-based CIMT.

Characteristics of participants

The study settings and targeted participants varied as only one study set clear inclusion criteria defining muscle tone of grade 1+ or 2, according to the Modified Ashworth Scale (Bedair et al., 2016). The rest of the studies participated children with spastic quadriplegia, spastic hemiplegia, children with MACS levels 2-4 and GMFCS 1-4. A total number of 202 children, ages 4-18, with cerebral palsy were included in these eight studies, of which 87 children were included in the control groups. The reviewed studies delivered interventions at rehabilitation centres, laboratory settings, schools or homes, and campus rooms. Out of all participants, only 1 was mentioned with mild intellectual disability – 4 out of 5 studies mentioned “being able to corporate and follow instructions” as inclusion criteria for the study.

Characteristics of the Virtual Reality Systems

Virtual environments ranged from a simple display of reaching targets in a 2D plane to a detailed replication of real-life environments, such as a tennis and basketball court or a kitchen activity.

Of the eight studies, eight different VR technology tools were used, and one study used two systems. Custom VR systems were used in two studies – Njit-Ravr System (freedom force-controlled robot combined with a ring gimbal) and a VR-based hand rehabilitation training system (a sensor glove) (Chen et al., 2007; Qiu et al., 2015). Commercial video game platforms and devices, such as Nintendo Wii (used handheld control), Kinect X-Box (camera can capture and track movement) and EyeToy-Play system (players to interact with games using motion), and others were used in six studies (Bedair et al., 2016; Chen et al., 2007; Do et al., 2016, Saussez et al., 2023; Fidan & Genc, 2023; Shih et al., 2023). Commercially available VR systems designed for rehabilitation purposes were used in one study - RAPAEL Smart Kids (wearable smart glove tracing the movements) (Chang et al., 2020).

Functional improvements using Virtual Reality Systems

In all studies, the sessions ranged from 10 to 75 minutes per session, and the frequency ranged from every day to three sessions per week for 2 to 8 weeks.

All eight studies reviewed VR technology as a tool that delivered task-specific training with functionally relevant tasks where all eight studies noted hand coordination, targeted hand movements, and timing as a functional outcome; four studies reviewed reaching and grasping Chang et al., 2020; Chen et al., 2007; Fidan & Genc, 2023; Shih et al., 2023); two studies reviewed arm swing (Bedair et al., 2016; Chen et al., 2007); one study – forearm rotation (Qiu et al., 2015) and in four studies (Do et al., 2016; Saussez et al., 2023) both hands were used simultaneously to improve active range of motion.

Out of eight studies, seven (Chang et al., 2020; Chen et al., 2007; Bedair et al., 2016; Qiu et al., 2015; Saussez et al., 2023; Fidan & Genc, 2023; Shih et al., 2023) noted that difficulty levels progressed by the system created algorithm or based on the judgment of a therapist or interventionist according to task success. One study (Do et al., 2016) did not mention any progression.

Auditory and visual feedback was delivered in all studies.

Table 1 **Included articles**

Author, year	Study design	No. of subjects	Age of participants	Used device/ VR system	Length and frequency of therapy	Results
Chang et al., 2020	non-blinded retrospective study	17	1.group – 6.08 (mean) 2.group – 4.88 (mean)	RAPAEL Smart Kids	1.group - 20min conventional therapy with 10 min VR therapy, 2 times per week, 8 weeks. 2.group - 30 min Conventional therapy, 2 times per week, 8 weeks	The study showed significant improvement in dissociated arm movement, grasps, weight bearing and protective extension in the group who used VR technology as an addition to conventional therapy.
Bedair, Al-Talawy, Shoukry, & Abdul-Raouf, 2016	RCT	40	5-10	X-BOX	Study group - 3 sessions /week, 30 min VR based therapy + 60 min extremity therapeutic program. Control group - therapeutic program for 60 min	Object manipulation, visual-motor skills and upper limb functions were significantly improved in study group post treatment compared to control one.
Chen et al., 2007	Single subject research	4	8-12	EyeToy-Play system on PlayStation 2 and the VR based hand rehabilitation training system	2 hours per week, 4 weeks. 45 minutes for the VR-based hand rehabilitation training system and 75 minutes for the commercial VR system in a week.	Children with no cognitive impairment showed improvements in some aspects of reaching kinematics whereas participants with mild retardation did not show any.

Do, Yoo, Jung & Park, 2016	single subject experimental design	3	5-7	Nintendo Wii	30 min/ 2 times a week, 20 weeks. Therapy divided in 3 periods – evaluation, therapy and follow up.	Virtual Reality based bilateral arm training had positive effects in improving hemiplegic CP children's upper limb motor skills and bilateral hand coordination ability.
Qiu et al., 2011	Quantitative, experimental study	9	7-15	NJIT-RAVR	1 hour, 3 days a week, 3 weeks	Results showed statistically significant improvements in sideways and forward reach as well as hand to mouth reach.
Saussez et al., 2023	RCT	40	REAtouch group – 9.o (mean); HABIT-ILE grou – 9.1 (mean)	semi-immersive virtual device REAtouch	10-12 weekdays in a high – dosage day - camp setting. Total 90 hours for all of participants. 41% of time REAtouch group was in one-to-one REAtouch sessions.	REAtouch group resulted in significant improvements in upper extremity motor function, daily life activity transfer, and goal attainment in children with unilateral CP, demonstrating non-inferiority compared to the usual HABIT-ILE intervention
Fidan & Genc, 2023	RCT	52	VR training group – 9.2 (mean); control group – 9.4 (mean)	XboX one Kinect	45 min/day, 2 days/8weeks	Both treatment approach was effective for improving upper extremity functions, but conventional therapy was superior to VR therapy.
Shih et al., 2023	RCT	27	Kinect-based CIMT – 8.49 (mean); Therapist - based CIMT group – 8.28 (mean)	Windows 8, connected with Kinect 2 sensor.	2.25 h a day, 2 days a week for 8 weeks.	Both treatment approach was effective for improving upper extremity functions, VR based therapy, but kinect-based CIMT may provide extra benefits on improving trunk motor control.

Discussion

This systematic review examines the impact of VR as a training tool on upper extremity function in children with CP. Only a few studies met the inclusion criteria, and the VR interventions varied widely, but despite the different methods employed, research consistently shows that VR enhances upper extremity functionality and coordination in children with CP. Results of randomized controlled trials included in this review show that VR-based interventions can demonstrate effects comparable to conventional therapy on upper extremity motor control and daily function, giving similar therapy results. Such a treatment model could be effective in terms of costs and outcomes. Visual representation of the results on the effect of VR on the functionality of the upper limbs and comparison between interventions can be seen in *Figure 1* and *Figure 2*.

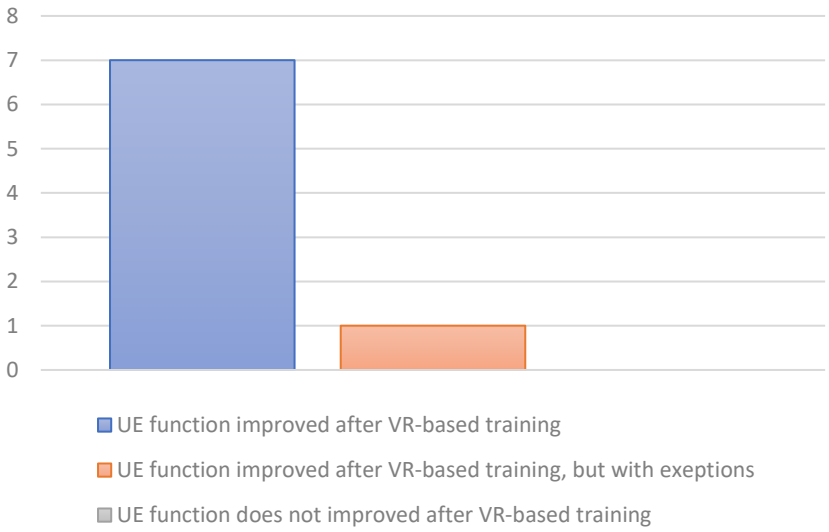

Figure 1 ***Positive results of VR-based training on upper extremity (UE) functions (n=number of studies)***

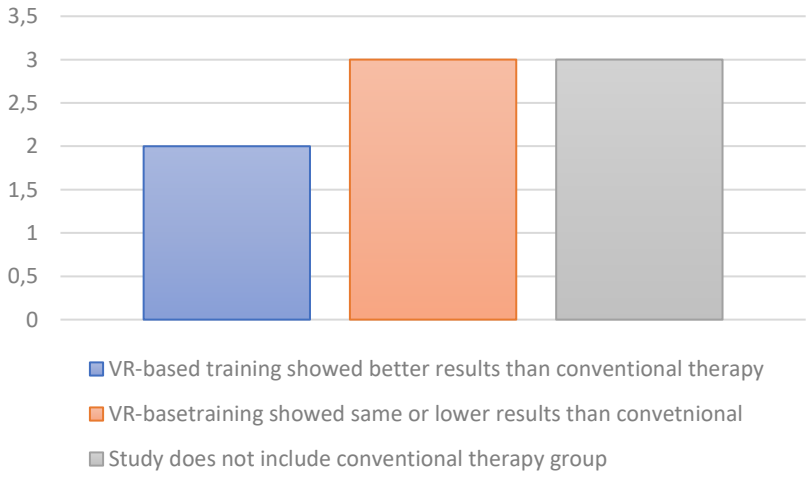

Figure 2 ***Result comparison between VR-based training and conventional training (n=number of studies)***

Some studies (Saussez et al., 2023; Shih et al., 2023) show that therapy sessions can ease the burden on families and therapists by doing sessions at home or in schools, attracting physiotherapists or with specially trained specialists in the use of the specific device. Therefore, educational institutions should also consider additional options for engagingly improving upper extremity function within the school environment - without fear of new technologies and utilizing VR, involving specialists, and caring for the well-being of children. Researchers (Saussez et al., 2023; Shih et al., 2023) believe that further research is needed, especially in a situation nowadays that limits access to various health-related services and ways to ease the burden on professionals and families should be researched.

Rehabilitation therapy is repetitive by nature, and repetition tends to reduce a patient's motivation. The use of VR enables the creation of an exercise environment in which children with CP can practice intensely and simultaneously to receive positive visual and auditory feedback, such as displaying gratifying messages in real-time ("great," "very good," etc.). Most studies comparing VR to conventional therapy cited the advantage of VR in children being still highly motivated, engaged, and playful despite the high number of repetitions of the task. (Weiss et al., 2004; Chang et al., 2020; Saussez et al., 2023; Fidan & Genc, 2023; Shih et al., 2023). VR also can compare the degree of movement performed by children in the real world and the degree of movement they observed in the virtual environment (Weiss et al., 2004; Chang et al., 2020). Moreover, VR allows the trainee to simulate dangerous situations. For instance, training for activities of daily living, such as cutting vegetables with a knife when cooking, may be difficult for children from a safety standpoint. Instead, VR can be a safe and effective alternative for such a dangerous environment (Chang et al., 2020).

The studies used various evaluation methods, but all studies set goals and results. The studies' results indicated that after VR-based bilateral arm training, improvement occurred in upper extremity motor skills on the affected sides and bilateral coordination ability for all the participants. Measurements revealed that upper extremity motor skills on the affected side and bilateral coordination ability were better than before the intervention.

Object manipulation, visual-motor skills, upper extremity functions (dissociated movement, grasp, protective extension, and weight bearing), bimanual manipulation, and gross and fine motor skills were improved in the research group post-treatment. The positive impact in three studied articles was similar to that of the control group. Still, in two of the studies, there was a significant improvement compared with the control group. It's important to note that training children with hand equipment to utilize object manipulation during therapy is unnecessary. VR technology can facilitate and improve the movement (Chen et al., 2007; Bedair et al., 2016; Chang et al., 2020). The training effects were retained in some children after the intervention (Chen et al., 2007; Do et al., 2016).

Each of the studies used a different duration and regimen of treatment, and even though the therapy duration was not similar, the VR intervention allowed for greater and better movement repetition and improved upper extremity function. The improvements showed in different kinematic parameters of reaching performance (Do et al., 2016; Bedair et al., 2016; Chen et al., 2007).

Bedair et al., 2016 and Chang et al., 2020 children were divided into two equal groups, comparing the obtained results - the study showed that VR-based rehabilitation with conventional therapy among children with CP might have better positive effects than conventional therapy alone on upper extremity function, the performance of daily activities and caregiver assistance resulting to reduce the burden on caregivers (Bedair et al., 2016; Chang et al., 2020), however, in studies by Saussez et al., 2023; Fidan & Genc, 2023, and Shih et al., 2023 both groups showed similar results or results were not unambiguous. The study and control groups demonstrated positive effects on the upper extremity motor control and daily function. Comparing two therapy methods, VR-based methods may provide extra benefits in

some functions like trunk motor control during forward reaching action, replacing trunk movement with arm forward reaching action. In previous studies, Chen et al. (2007) investigated and showed some improvement in the quality of reaching performance during the VR intervention. The training effects were partially maintained four weeks after the intervention. Compared with Chang's (2020) research results, he showed that VR-based rehabilitation improved upper extremity and functional skills among children with CP. It can be concluded from both studies that using VR will improve and provide significantly reliable results (Chen et al., 2007; Chang et al., 2020).

There are several limitations in this review. Three of the eight studies that were included in this research had a small number of participants and did not have control groups, which limited and reduced the validity of the research. Different tools and measurement methods were used in each study, meaning the results could not be compared statistically according to the same criteria. Scientific article search strategies may not include all research containing the selected keyword. All the studies included in this review did not score high on PEDRO. The main reason is the type of studies included in this research - randomized clinical trial, pilot study, non-blinded retrospective study, and single-subject research.

Conclusion

The aim of this review was to investigate VR technology's impact on upper extremity function for children with CP. The findings suggest that using VR technology as a rehabilitation tool improves upper extremity function. Conventional therapy can be replaced with VR-based therapy, but more randomized and specific studies on the subject are needed in the future. Also, even though previous studies show that custom virtual reality systems are better tailored to the needs of children with CP because of their ability to provide better-adapted experience suited for their individual needs, this review shows that the commercially available and used VR systems can be as successfully used in the rehabilitation process for children with CP targeting specific motor function.

References

Bateni, H., Carruthers, J., Mohan, R., & Pishva, S. (2024). Use of Virtual Reality in Physical Therapy as an Intervention and Diagnostic Tool. *Rehabilitation research and practice*, 1122286. DOI: https://doi.org/10.1155/2024/1122286

Bedair, R., Al-Talawy, H., Shoukry, K., & Abdul-Raouf, E. (2016). Impact of virtual reality games as an adjunct treatment tool on upper extremity function of spastic hemiplegic children. *International Journal of Pharmaceutical and Chemical Sciences, 4*(3), 1-8.

Centers for Disease Control and Prevention (CDC). (2024). Cerebral Palsy (CP). U.S. Department of Health and Human Services. Retrieved from https://www.cdc.gov/ncbddd/cp/facts.html.

Chang, H. J., Ku, K. H., Park, Y. S., Park, J. G., Cho, E. S., Seo, J. S., Kim, C. W., & Se Hwi, O. (2020). Effects of virtual reality-based rehabilitation on upper extremity function among children with cerebral palsy. *Healthcare*, *8*(4), DOI: https://doi.org/10.3390/healthcare8040391

Chen, Y. P., Kang, L. J., Chuang, T. Y., Doong, J. L., Lee, S. J., Tsai, M. W., Jeng, S. F. & Sung, W. H. (2007). Use of virtual reality to improve upper-extremity control in children with cerebral palsy: A single-subject design. *Physical Therapy*, *87*(11), 1441-1457. DOI: 10.2522/ptj.20060062.

Chen, Y. P., Kang, L. J., Chuang, T. Y., Doong, J. L., Lee, S. J., Tsai, M. W., Jeng, S. F. & Sung, W. H. (2007). Use of virtual reality to improve upper-extremity control in children

with cerebral palsy: A single-subject design. *Physical Therapy*, *87*(11), 1441-1457. DOI: https://doi.org/10.2522/ptj.20060062

Chen, Y. P., Lee, S. Y., & Howard, A. M. (2014). Effect of virtual reality on upper extremity function in children with cerebral palsy: a meta-analysis. *Pediatric physical therapy : the official publication of the Section on Pediatrics of the American Physical Therapy Association, 26*(3), 289–300. DOI: https://doi.org/10.1097/PEP.0000000000000046

Do, J. H., Yoo, E. Y., Jung, M. Y. & Park, H. Y. (2016). The effects of virtual reality-based bilateral arm training on hemiplegic children's upper extremity motor skills. *NeuroRehabilitation, 38*(2), 115-127. DOI: 10.3233/nre-161302.

Fandim, J. V., Saragiotto, B. T., Porfírio, G. J. M., & Santana, R. F. (2021). Effectiveness of virtual reality in children and young adults with cerebral palsy: a systematic review of randomized controlled trial. *Brazilian journal of physical therapy*, *25*(4), 369–386. DOI: https://doi.org/10.1016/j.bjpt.2020.11.003.

Fidan, Ö. & Genç, A. (2023). Effect of Virtual Reality Training on Balance and Functionality in Children with Cerebral Palsy: A Randomized Controlled Trial, *Turkish Journal of Physiotherapy and Rehabilitation, 34*(1), 64-72. DOI: 10.21653/tjpr.1017679.

Fluss, J.,&Lidzba, K. (2020). Cognitive and academic profiles in children with cerebral palsy: A narrative review. *Annals of Physical and Rehabilitation Medicine, 63*(5), 447–456. DOI: https://doi.org/10.1016/j.rehab.2020.01.005

Hasan, Md. (2020). Achieving Functional Independence of Children with Cerebral Palsy at the Mainstream School: An Overview Mainstream School. *Open Access Library Journal, 7*, 1-23. DOI: https://doi.org/10.4236/oalib.1106597

Javaid, M., & Haleem, A. (2020). Virtual reality applications toward medical field. *Clinical Epidemiology and Global Health*, 8(2), 600-605. DOI: https://doi.org/10.1016/j.cegh.2019.12.010

Netto, A., Wiesiolek, C., Brito, P., Rocha, G., Tavares, R., & Lambertz, K. (2020). Functionality, school participation and quality of life of schoolchildren with cerebral palsy. *Fisioterapia em Movimento, 33*. DOI: https://doi.org/10.1590/1980-5918.033.ao29.

Qiu, Q., Adamovich, S., Saleh, S., Lafond, I., Merians, A. S. & Fluet, G. G. (2011). A comparison of motor adaptations to robotically facilitated upper extremity task practice demonstrated by children with cerebral palsy and adults with stroke, *IEEE International Conference on Rehabilitation Robotics*. DOI: 10.1109/ICORR.2011.5975431.

Ravi, D. K., Kumar, N., & Singhi, P. (2017). Effectiveness of virtual reality rehabilitation for children and adolescents with cerebral palsy: an updated evidence-based systematic review. *Physiotherapy*, 103(3), 245–258. DOI: https://doi.org/10.1016/j.physio.2016.08.004

Reid, D. (2002). The use of virtual reality to improve upper ekstremity efficiency skills in children with cerebral palsy: a pilot study. *Technology and Disability*, *14*(1), 53-61. DOI: https://doi.org/10.3233/TAD-2002-14202

Saussez, G., Bailly, R., Araneda, R., Paradis, J., Ebner-Karestinos, D., Klöcker, A., Sogbossi, E. S., Riquelme, I., Brochard, S., & Bleyenheuft, Y. (2023). Efficacy of integrating a semi-immersive virtual device in the HABIT-ILE intervention for children with unilateral cerebral palsy: a non-inferiority randomized controlled trial. *Journal of NeuroEngineering and Rehabilitation, 20*(1), 98. DOI: https://doi.org/10.1186/s12984-023-01218-4.

Shih, T. Y., Wang, T. N., Shieh, J. Y., Lin, S. Y., Ruan, S. J., Tang, H. H., & Chen, H. L. (2023). Comparative effects of Kinect-based versus therapist-based constraint-induced movement therapy on motor control and daily motor function in children with unilateral

cerebral palsy: a randomized control trial. *Journal of NeuroEngineering and Rehabilitation, 20*(1), 13. DOI: https://doi.org/10.1186/s12984-023-01135-6

Tonmukayakul, U., Imms, C., Mihalopoulos, C., Reddihough, D., Carter, R., Mulhern, B., & Chen, G. (2020). Health-related quality of life and upper-limb impairment in children with cerebral palsy: developing a mapping algorithm. *Developmental Medicine and Child Neurology, 62*(7), 854–860. DOI: https://doi.org/10.1111/dmcn.14488

Weiss, P. L., Rand, D., Katz, N., & Kizony, R. (2004). Video capture virtual reality as a flexible and effective rehabilitation tool. *Journal of neuroengineering and rehabilitation, 1*(1), 12. DOI: https://doi.org/10.1186/1743-0003-1-12

MANAGING PSYCHO-EMOTIONAL RISK FACTORS AND STRESS IN THE WORK ENVIRONMENT OF SOCIAL WORKERS

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Abstract. *The publication highlights a topical and socially relevant issue in the professional reality of social workers - the dangers of psycho-emotional and psychosocial factors in the work environment and possible solutions to reduce them. The aim of the article is to identify and describe the psycho-emotional risk factors in the work environment of social workers, and to offer suggestions for reducing stress and improving job security in the practice of social work. The data for the study were obtained by analysing scientific literature and normative documents, as well as by interviewing 194 social workers from different regions of Latvia. The study identified psycho-emotional risk factors in the working environment of social workers: high professional demands, time-limited work and deadlines, increased responsibility and insufficient availability of personal protective equipment. The publication highlights recommendations, based on theory and practice, on the necessary measures to reduce stress and improve occupational safety of social workers in the provision of social services in Latvia.*
Keywords: *psycho-emotional work environment risk factors, work environment, stress management, social workers.*

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Introduction

Social work is the technology of social relationships. Social workers use specific tools: specific knowledge and professional skills in assessing social processes and problems, finding points of intervention in complex social structures, planning and implementing strategies for change that enable people to improve their quality of life (Vilka, 2008). The profession of social worker belongs to the risk group of psychological well-being professions, as social work is concerned with addressing the multiple problems of individuals and families who may be exposed to various risks of danger, violence, setbacks and acute stress situations. The professional working environment requires not only specific, multi-faceted knowledge, but also a high level of resilience, as clients are confronted with psychological trauma, health problems including addiction, mental illness and mental disorders. "The social problems we have to deal with are becoming more and more complex and require more and more professionalism on the part of social workers, new knowledge of cultures and traditions of other countries and knowledge of languages. Problems and aspects that could not even be imagined twenty years ago - the lack of a middle class, the general poverty of society, which influence people's attitudes, including, for example, on the issue of refugees" (Jaunsleinis, 2015, p. 5).

Social work with different target groups therefore puts social workers under increased psychological strain, which can often lead to emotional exhaustion and the risk of professional burnout. It has been observed that the absolute number of newly registered occupational diseases in Latvia continues to increase and reached its highest level in 2021 (1807 registered persons) (Vanadziņš et al., 2023a). In 2021, a study conducted by a leading research and consulting company in Latvia shows that three out of four employees, or 75%, admit that they are worried about stress related to their daily work tasks (Kantar, 2021).

According to the results of the study "Working conditions and risks in Latvia 2019-2021", working conditions in Latvia have continued to change since 2006 from traditional work environment risk factors to psycho-emotional work environment risk factors, which became dominant in 2022 (Vanadziņš et al., 2023a).

Work takes up a third of a person's life, and there is no other area of activity that is comparable in terms of time (Doronina, 2016). It is therefore important to feel safe at work, as an individual's well-being has a significant impact on their physical and mental health, as well as their overall quality of life. A study published in 2021 found that the psychological well-being of employees can be a determinant of higher levels of productivity. Experimental evidence suggests a causal effect of employee well-being on productivity (Isham, Mair & Jackson 2021). On the other hand, prolonged stressors can lead to exhaustion or burnout, as the social work profession involves unpredictable daily challenges and hazards.

Based on the topicality and social relevance of the study, the **aim of the publication** is to identify and characterise the psycho-emotional risk factors of the working environment of social workers, offering suggestions for reducing stress and improving safety at work.

Literature Review

Psycho-emotional risks and stress at work are one of the main occupational safety and health problems in Europe. They have a significant impact not only on the health of individuals, but also on the well-being of organisations and national economies (European Agency for Safety and Health at Work, 2022).

According to the European Agency for Safety and Health at Work's EU "Eurobarometer OSH Pulse", almost half of workers (46%) are under a lot of time pressure or overworked. Other factors causing stress are poor communication or cooperation within the organisation and lack of control over work, the pace of work or processes. A fairly high proportion of workers report several work-related health problems, which are usually related to stress: 30% of respondents report at least one health problem (general fatigue, headache, eye movement, muscle problems or pain) caused or aggravated by work (European Agency for Safety and Health at Work, 2022).

Exposure to work-related psychosocial risk factors at work can cause prolonged work-related stress and lead to anxiety, depression and burnout, which affect workers mental health (European Agency for Safety and Health at Work, 2024).

Clients often experience intense emotional experiences and crises which social workers need to be able to withstand, listen to and manage in a supportive way. Ābeltiņa (2023) argues that the vivid retelling of the trauma by the survivor and the subsequent emotional and cognitive processing of the event by the helping professionals can lead to a range of symptoms and reactions similar to post-traumatic stress disorder.

Stress has become an integral part of modern life, entering people's every day and professional lives and affecting their health and satisfaction with life in general. In addition, the situation regarding psychological well-being and stress has been significantly aggravated by the global spread of the coronavirus disease Covid-19 and its associated limitations and economic consequences. The start of hostilities in Ukraine on 24 February has also caused stress and uncertainty. To help people in crisis and emergency situations, social workers need to be able to keep calm, manage stress and have some professional knowledge about crisis intervention, emergencies and communication in such situations. Emergencies create additional stress and strain for social workers, which can have long-term negative health effects. In addition to human suffering and damage to health, there is also a purely economic side to the problem. Research shows that increased stress levels and employees failure to address psycho-emotional risk factors in the work environment lead to reduced work capacity,

more frequent sickness and higher healthcare costs (Riga Stradiņš University Institute of Occupational Safety and Environmental Health & Stabingis, 2011).

The prevalence of work-related psycho-emotional illness is likely to increase in the future, as surveys show an increase in the number of employees with heavy workloads, time constraints, the need to make difficult decisions, etc., which can lead to burnout (Vanadziņš et al., 2023b).

In a survey of employees in Latvia in 2022, a total of 62.1% of respondents said that their job involved a heavy workload and many tasks, one of the most common workplace risk factors cited by employees. In addition to being psycho-emotional risk factors, lack of time and heavy workload can increase the risk of accidents and affect employee safety, as employees lack time and attention (Vanadziņš et al., 2023b).

The definition of the working environment is given in Article 1 of the Labour Protection Act, which defines the working environment as the workplace with its physical, chemical, psychological, biological, physiological and other factors to which an employee is exposed during the performance of his or her work (Labour Protection Act, 2001). The working environment is also explained as an institution for socialisation and competence formation. In the work environment, people are aware of their role in the team, their abilities, interests, motives, attitudes, the degree of satisfaction of needs, as well as the formation of a culture of interpersonal interaction and behaviour (Garleja, 2006). "Today, the working environment is changing: work is becoming more and more intensive, it requires a great deal of attention, the maximum use of human mental and physical capacities. Problems are caused by unprecedented materials, a combination of risk factors in the work environment, over-intensive work, information overload, psychological stress, dependence on computers, the vocational orientation of young people and an ageing workforce. New risk factors in the work environment may arise from modern work processes, technologies and workplaces, as well as from changes in work organisation, globalisation and uncertainty about the future of work" (Eglīte, 2012, p. 2).

According to the results of the study "Working conditions and risks in Latvia 2019-2021", working conditions in Latvia continue to change. In 2006, it was concluded that there had been a shift from traditional risk factors to ergonomic and psycho-emotional risk factors in the working environment. In 2018, psycho-emotional risk factors (organisation of working time, direct contact with customers, etc.) and ergonomic risk factors (forced postures, uniform movements, etc.) were the most frequently mentioned, while in 2022 psycho-emotional risk factors have become the most frequent (Vanadziņš et al., 2023a).

Reducing psycho-emotional risk factors can take place at two levels. At the organisational level, this involves changing the work situation within the organisation, and at the individual level, it involves strengthening the employee's resilience to specific work stressors and thus learning to cope better with stress. At the organisational level, this means carrying out employee surveys, improving job content and the work environment, creating a favourable organisational climate, improving management, programmes to improve employee health, etc. At the individual level, it means educating employees, maintaining a healthy lifestyle, participating in personal and communication skills training, work-life balance, cognitive behavioural therapy, relaxation, etc. (Reņģe, 2007).

Psychologist V. Reņģe believes that stress in the workplace is mostly reduced at the individual level, without always taking into account the specific characteristics of work stress and the role of the work environment in causing stress. He also believes that stress management procedures address stress in general, not specific workplace stress, and that it is a misconception that stress is only a personal problem and not a work-related one. "Instead of reducing stressors in the organisation, people are taught how to cope with stress" (Reņģe, 2007, p. 66).

It should be noted that social workers have access to a specific form of support, such as supervision, the need for which is determined by Cabinet of Ministers Regulation No. 338 of 13 June 2017 "Requirements for social service providers" (Regulation No. 338 of the Cabinet of Ministers, 2017). Supervision is a consultative support in matters related to the professional activity of social workers. Supervision also helps to build relationships with colleagues, broaden the professional perspective on case management, and aims to reduce stress factors and burnout (Latvian Association of Supervisors, n.d.).

"In Latvia, there are no specific laws and regulations regulating the permissible level of psycho-emotional risk factors in the workplace. However, psycho-emotional risk factors of the working environment are mentioned in several normative documents on labour protection" (Eglīte, 2012, p. 669). With regard to the requirements for determining the psycho-emotional risk factors of the work environment, the most relevant normative document to be taken into account is Annex 1 to Regulation of the Cabinet of Ministers No. 660 of 2 October 2007 "Procedure for Internal Monitoring of the Work Environment", which specifies which psycho-emotional risk factors should be assessed when conducting a risk assessment of the work environment (Riga Stradiņš University Institute of Occupational Safety and Environmental Health & Stabingis, 2011).

The definition of occupational risk is given in Article 1 of the Labour Protection Act, where it is defined as the probability of damage to the safety or health of workers in the working environment and the probable severity of this damage (Labour Protection Act, 2001). According to Section 8 (1) of the Labour Protection Act, the employer must assess the risks in the working environment in accordance with a specified procedure and, as a final step, determine what appropriate protective measures (e.g. providing personal protective equipment, carrying out mandatory health checks, training employees, replacing work equipment) are necessary to prevent or reduce risks in the working environment (Labour Protection Act, 2001). "Today it has been proven that virtually all adverse environmental factors - chemical, biological, physical and mechanical risk factors in the workplace and the environment, as well as ergonomic, organisational and psychosocial factors - act through stress mechanisms" (Eglīte, 2012, p. 666).

The Dictionary of Social Work by Ozola et al. (2023) emphasises that stress is broadly defined as the body's response to any environmental demand or change. Stress occurs in situations where there is a significant discrepancy between the demands of the internal or external environment and the person's ability to meet them, and there is a threat to stability. "... but when stress is prolonged, intense and recurrent, it leads to mental and physical health problems (depression, nervous breakdown, heart disease, etc.)" (Forand, 2007, p. 63).

Stressors are threatening or unpleasant environmental factors that make an individual defensive. Stressors are stressful stimuli and stress reactions are stress responses or tensions. The most common stressors in the work environment are: overwork, demands to work faster, deadlines, conflicting demands, relationships with managers, colleagues and customers. When stressors are prolonged, they lead to illness and burnout syndrome (Reņģe, 2007). "The only way to improve the social aspects of work is to promote all positive contacts in the work environment, which would increase the importance and self-esteem of each employee and promote teamwork" (Eglīte, 2012, p. 675).

Methodology

The empirical study was conducted between 4/12/2023 and 10/12/2023. According to the classification of the research design, an applied, non-experimental review study was conducted; according to the data extraction procedure, a structured survey of social workers was conducted.

According to the information available on the website of the Ministry of Environmental Protection and Regional Development, there are 43 municipal administrative areas in Latvia, 36 municipalities and 7 cities that are not part of municipalities (Ministry of Environmental Protection and Regional Development, 2021). In the light of the above, the information available on the Internet about municipal social services in Latvia and their e-mail addresses was identified. The survey was conducted among social workers of Latvian municipal social services, n = 194 respondents in total.

The questionnaire contained 49 questions based on the authors findings on psycho-emotional risk factors in the workplace and the impact of stress on social workers health, as highlighted in the theoretical review. The questionnaire was sent electronically to social services email addresses. The survey was conducted anonymously using *Google Forms* software (online form creator).

Methods used in the study: theoretical research - analysis of scientific literature, analysing the content of normative documents; methods of data collection: quantitative method - structured survey (instrument - questionnaire); methods of data analysis: statistical analysis (*Microsoft Excel*) and descriptive statistical method (*Excel Charts*).

Research results

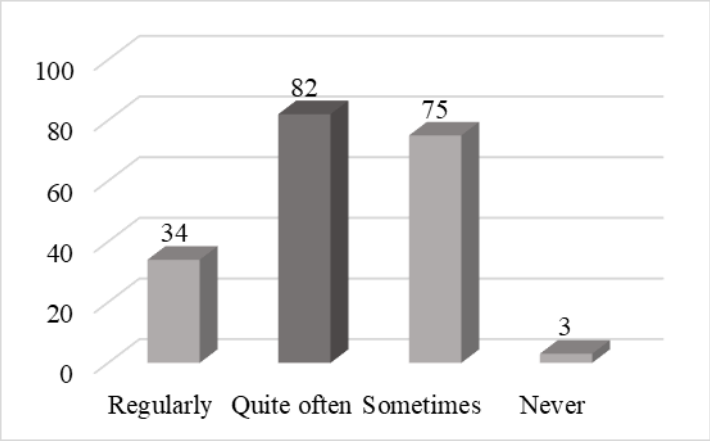

Figure1 ***Stress assessment in the work environment*** *(created by the author)*

The data show that stress experienced at work quite often has a significant impact on the health of n=82 (42.3%) social workers, n=75 (38.7%) social workers sometimes have a significant impact on their health, n=34 (17.5%) social workers regularly have a significant impact on their health, n=3 (1.5%) social workers never have a significant impact on their health. Conclusion: for the majority, i.e. n=116 or 59.80% of the social workers surveyed in Latvia, stress at work regularly or quite often has a significant impact on their health, which is in line with the survey of employees in Latvia conducted by the leading research and consulting company Kantar in 2021, according to which 75% of the employees surveyed admit that they are worried about stress related to the performance of their daily work tasks.

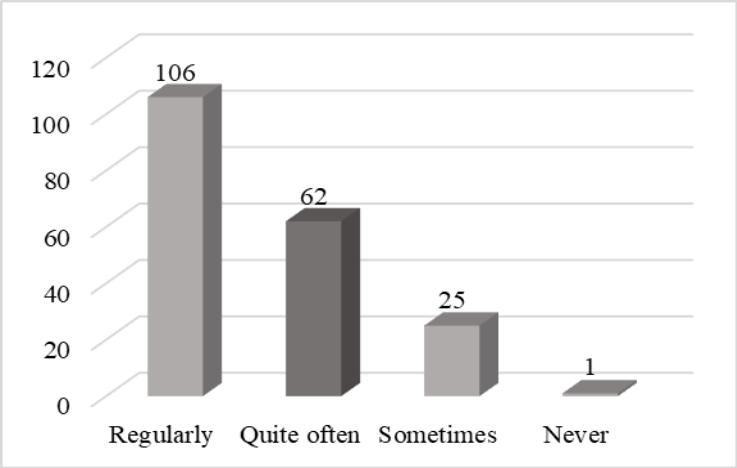

Figure2 ***High professional requirements in the workplace*** *(created by the author)*

The data show that n=106 (54.6%) social workers regularly have high professional requirements at work, while n=62 (32%) have high professional requirements quite often and n=25 (12.9%) sometimes, but n=1 (0.5%) social worker never has high professional requirements at work. Conclusion: a very large majority, i.e. n=168 or 86.6%, of the social workers surveyed have high professional requirements at work regularly or quite often.

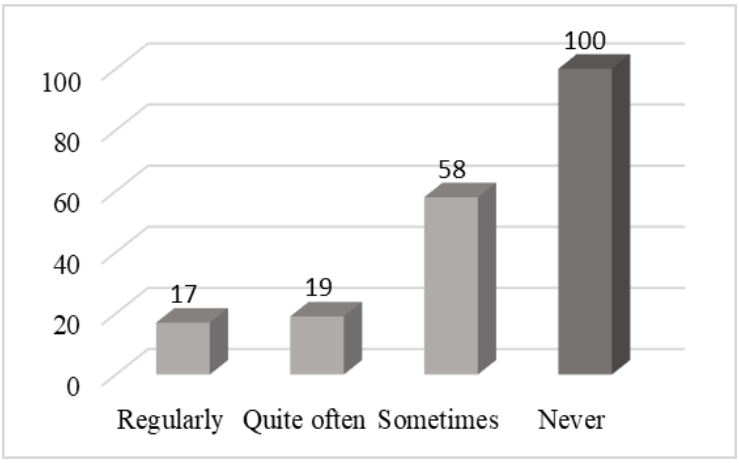

Figure3 ***Evaluation of employee surveys in the workplace, e.g. to identify causes of stress, psycho-emotional risk factors in the work environment or to assess employee satisfaction, etc.*** *(created by the author)*

The data show that n=17 (8.8%) social workers' workplaces conduct employee surveys regularly, n=19 (9.8%) conduct them quite frequently, n=58 (29.9%) conduct them sometimes, but n=100 (51.5%) social workers' workplaces never conduct employee surveys. Conclusion: more than half of the social workers surveyed, i.e. n=100 or 51.5%, never conduct employee surveys in their workplaces, e.g. to identify causes of stress, psycho-emotional risk factors in the work environment, or to assess employee satisfaction, etc.

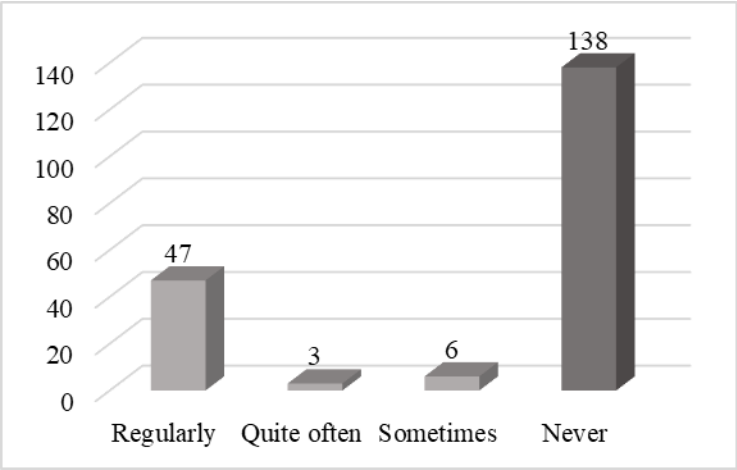

Figure 4 ***Workplace equipment with an emergency button*** *(created by the author)*

The data show that n=47 (24%) social workers have the emergency button at their workplace regularly, n=3 (2%) have the emergency button quite often and n=6 (3%) have the emergency button sometimes, but n=138 (71%) social workers never have the emergency button at their workplace. Conclusion: the majority, i.e. n=138 (71%) of the social workers surveyed never have the emergency button at their workplace, which would be necessary as it would increase safety in the workplace and possibly prevent social workers from being physically harmed by clients.

Table 1 ***Psycho-emotional risk factors of social workers and their assessment*** *(created by the author)*

Groups of stressors	**Stressors**	**Survey data**	**High risk**	**Medium risk**	**Low risk**
Content of the work	high professional requirements	106 or 54,6% regularly	X		
	jerky work	85 or 43,8% sometimes		X	
	constant work	83 or 42,8% sometimes		X	
Workload and pace of work	too much work	78 or 40,2% sometimes		X	
	working at too fast a pace	94 or 48,5% sometimes		X	
	time-limited work and time limits	130 or 67% regularly or quite often	X		
Organisation of working time	working hours according to wishes	84 or 43,3% regularly			X
The employee's role and participation in the organisation	inability to influence decisions about work	103 or 53,1% sometimes		X	
	too much responsibility	134 or 69,1% regularly or quite often	X		
	too little responsibility	157 or 80,9% never			X
Organisational culture	unsatisfactory internal communication	91 or 46,9% sometimes		X	
	confusion about the organisation's objectives and structure	83 or 42,8% sometimes		X	

	ineffective management style	87 or 44,8% sometimes		X	
Career development	career failure (lack of progression)	65 or 33,5% sometimes			X
	undervaluing achievements	96 or 49,5% sometimes		X	
	job insecurity	88 or 45,4% sometimes		X	
Relations with other employees	social isolation	120 or 61,9% never			X
	mobbing in the workplace	107 or 55,2% never			X
	bossing in the workplace	33 or 17% regularly or quite often			X
	lack of support and communication between workmates	85 or 43,8% never		X	
	disagreements with work colleagues	145 or 74,7% sometimes		X	
Physical characteristics of the workplace	poorly organised work processes	114 or 58,8% sometimes		X	
	annoying workplace defects (e.g. squeaky doors, broken chairs, equipment not working, etc.)	103 or 53,1% sometimes		X	
	insufficient personal protective equipment	138 or 71,1% agrees	X		
Relationships with customers	negative and/or destructive attitudes from customers	115 or 59,3% feel		X	

Conclusion

As shown in Table 1, working conditions have created a variable set of psycho-emotional risk factors in the work environment, which in turn shape the microclimate in the workplace. A working environment that places mental and emotional stress on people has become a priority. The work environment has a major impact on the health and well-being of employees, as well as on their personal development and socialisation. Employees themselves also shape the work environment in which they work through their attitudes, values, experiences and socialising culture. The authors J. Roja, I. Roja and Kaļķis (2016) argue that stress and violence in the work environment also affect the deterioration of interpersonal relations between employees and can lead to a breakdown of the work organisation and the overall work environment.

Today, the working environment and the intensity of work have changed. Work has become more complex due to the rapid flow of information and technological developments. As the results of the "Working conditions and risks in Latvia 2019-2021" study show, the psycho-emotional working environment is becoming more and more of a priority in 2022 (Vanadziņš et al., 2023a). The terms psycho-emotional or psychosocial risk factors of the work environment are not defined in the Labour Protection Act, so many authors refer to both in their works.

Taking into account the responses of the respondents (n=194), the practical study identifies the psycho-emotional risk factors in the working environment of social workers and an assessment of these, summarising the responses of respondents. According to the survey,

high occupational hazards in social work are: high professional demands, time-limited work and deadlines, increased levels of responsibility and inadequate personal protective equipment.

The identified psycho-emotional risk factors of the social workers' work environment can be used by social services managers to become aware of the current situation in Latvian social services and to assess the need to conduct employee surveys and organise occupational safety measures aimed at creating a safe and healthy work environment and promoting the well-being of social workers.

Workplace preventive measures are a set of measures that are an integral part of occupational safety and health and are designed to reduce or eliminate workers' exposure to harmful risks in the working environment. They can improve the working conditions and working environment of workers, with long-term effects on their health.

Taking into account the psycho-emotional risk factors of the work environment identified in the study and the answers given by the social workers regarding the causes of stress, it would be necessary to conduct employee surveys in each social service as a workplace to identify the causes of stress, psycho-emotional risk factors of the work environment, as a survey is the only way to find out the opinion of the employees anonymously, and the study found that more than half of the employees, i.e. n=100 or 51.5% of the social workers surveyed, never carry out employee surveys in their workplaces, e.g. to identify causes of stress, psycho-emotional risk factors in the work environment or to assess employees' job satisfaction. There is also a need to improve the content of work and the working environment and to create a favourable organisational climate.

There is a need for training in stress management in social services, as a significantly high proportion, n=137 or 70.7% of the social workers surveyed, agree that there is a need for training in the workplace, and it is also significant that n=116 or 59.80% of the social workers surveyed in Latvia experience stress at work regularly or quite often, which has a significant impact on their health.

The study found that the majority, i.e. n=138 or 71%, of the social workers surveyed had never had an emergency button in their workplace, which should be a primary consideration when thinking about the safety of social workers, as it would create a greater sense of security and possibly protect social workers from the possibility being physically harmed by clients. Section 28 (2) of the Labour law stipulates that the employer undertakes to provide the employee with safe and healthy working conditions when concluding the employment contract (Labour law, 2001).

Employers need to provide personal protective equipment for employees to use in self-defence or to intimidate an attacker, as more than half, n=101 or 52.06%, of social workers surveyed agree that they would use personal protective equipment to defend themselves or to intimidate an attacker in the event of a direct threat from a client.

Taking into account the results of the study, it would be useful to organise information on psycho-emotional risk factors for employees in social services, as a very high percentage, i.e. n=145 or 74.7%, of the social workers surveyed agree that training on psycho-emotional risk factors in the workplace should be organised by the employer.

It should be noted that the study also found that 85 or 44% of the social workers surveyed never lacked peer support and communication, which is very positive and a very good resource to prevent burnout.

References

Ābeltiņa, M. (2023). *Professional burnout. Spot and prevent burnout, regain work efficiency and vitality.* Riga: Zvaigzne ABC.

Bela, B., Ozola, I., Rasnača, L., Rezgale-Straidoma, E., Roga-Vailza, V., & Romāne-Meiere, A. (2023).

Dictionary of social work. Riga: Academic Publishing House of the University of Latvia.
Doronina, M. (2016). The impact of life satisfaction on job satisfaction. *Psychology for family and school*, No. 2016/04, 30-40.
Eglīte, M. (2012). *Occupational medicine*. Riga: Riga Stradinš University.
European Agency for Safety and Health at Work. (2022). *OSH Pulse - Occupational safety and health in post-pandemic workplaces. Flash Eurobarometer.* Retrieved from: https://osha.europa.eu/sites/default/files/Eurobarometer-OSH-in-post-pandemic-workplaces_en.pdf
European Agency for Safety and Health at Work. (2024). *Mental health at work after the COVID19 pandemic - what European data reveal.* Retrieved from: https://osha.europa.eu/sites/default/files/documents/Mental%20health%20at%20work%20after%20the%20COVID%20pandemic_en_0.pdf
Forands, I. (2007). *Assistant to the HR Officer*. Riga: SIA "Elpa-2".
Garleja, R. (2006). *Human potential in social settings.* Riga: RaKa.
Isham, A., Mair, S., & Jackson, T. (2021). Worker wellbeing and productivity in advanced economies: Re-examining the link. *Ecological Economics, 184*, Article 106989. 1-9. DOI: https://doi.org/10.1016/j.ecolecon.2021.106989
Jaunsleinis, A. (2015). The development of social work and its importance. *Knowledge transfer in social work practice: you can tell by the work, 2*/2015, 5. Retrieved from: https://www.lm.gov.lv/lv/media/7558/download
Labour law. (2001). Riga: Saeima. Retrieved from: https://likumi.lv/ta/id/26019-darba-likums
Labour Protection Act. (2001). Riga: Saeima. Retrieved from: https://likumi.lv/ta/id/26020-darba-aizsardzibas-likums
Latvian Association of Supervisors. (n.d.). *About supervision.* Retrieved from: https://www.supervizija.lv/lv/par-superviziju/
Leading research and consulting company Kantar. (2021). *Three out of four employees say they are concerned about the stress associated with their day-to-day work.* Retrieved from: https://www.kantar.lv/tris-no-cetriem-darbiniekiem-atzist-ka-vinus-satrauc-stress-kas-saistits-ar-ikdienas-darba-pienakumu-izpildi/
Ministry of Environmental Protection and Regional Development. (2021). *Administrative Territorial Reform.* Retrieved from: https://www.varam.gov.lv/lv/administrativi-teritoriala-reforma
Regulation No. 338 of the Cabinet of Ministers. (2017). Riga: Cabinet of Ministers. Retrieved from: https://likumi.lv/ta/id/291788-prasibas-socialo-pakalpojumu-sniedzejiem
Reņģe, V. (2007). *The psychology of modern organisations.* Riga: Zvaigzne ABC.
Riga Stradiņš University Institute of Occupational Safety and Environmental Health, & Stabingis, A. J. (2011). *Stress at work or psycho-emotional factors of the working environment* [Brochure]. Retrieved from: http://stradavesels.lv/Uploads/2014/02/18/24_2011_Psihoemoci_riski_brosura.pdf
Roja, Ž., Roja, I. & Kaļķis, H. (2016). *Stress and violence at work. What to do?* Riga: Gutenbergs Druka.
Vanadziņš, I., Akūlova, L., Paegle, L., Venžega, K., Lakiša, S., Jakimova, D., Kaņējeva, S., Goško, D., Libora, I., Gutoviča, O., Reinsons, J., Mūrniece, E., Pļavinska, E., Orehova, A., Liepiņa, I., Indriksone, A., & Cvetkova, J. (2023a). *Final report of the study Working conditions and risks in Latvia 2019–2021*. Riga Stradiņš University. DOI: https: //doi.org/10.25143/DARL-LV-2023
Vanadziņš, I., Akūlova, L., Paegle, L., Venžega, K., Lakiša, S., & Jakimova, D. (2023b). The thematic supplement *Psycho-emotional factors in the working environment* of the study *Working conditions and risks in Latvia 2019–2021*. Retrieved from: Riga Stradiņš University. DOI: https://doi.org/10.25143/DARL-LV-2023_04
Vilka, L. (2008). The role of definitions in the construction of the image of the social work profession. *Social Worker, No.1*, 8-11.

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EDUCATION. INNOVATION. DIVERSITY (EID)

THE ROLE OF SUPPORT GROUPS FOR THE DEVELOPMENT OF SOCIAL SKILLS IN THE SOCIAL WORK WITH FAMILIES WITH CHILDREN

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Abstract. *In today's society, a person's ability to interact with society plays an important role - it depends on the social skills of each individual. This study reviews and cites several studies in Latvia and abroad, which indicate that families with children who lack knowledge and skills in raising children need to be educated, with special emphasis on the need to provide support as early as possible (early intervention) in order to prevent a significant lack of social skills in children in the future. The aim of this study is to investigate the social skills deficits of preschool children observed by social workers working with families with children, as well as the role and need for social skills support group activities in social work with families with children, by surveying social services in Latvian municipalities about the benefits of this social work method. The research uses theoretical and empirical research methods (structured questionnaire), data processing and analysis methods. The study concludes with findings on the causes of social skills gaps in families with children and the important role of support groups in social work with families with children in Latvia as an additional tool for social workers to help families with children integrate into society and develop these missing social skills.*
Keywords: *social skills, support groups, social work, socialisation, family with children*.

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Introduction

The Global Programme of Action "Education for Sustainable Development 2030" (ESD 2030), adopted by the UNESCO General Conference in 2019, identifies the need to develop the knowledge, skills, values and attitudes that support individual and collective decision-making in order to encourage and motivate people to participate in public life (United Nations Educational, Scientific and Cultural Organization (UNESCO), 2021). The family is the most important socialising environment for individuals, but as they grow up and move into other groups, the knowledge they acquire needs to be applied, reinforced and developed. Ajilchi and Kargar (2013) point out that children's emotional and social attitudes are influenced by their parents: if a child experiences a caring and warm relationship in the family, the child's social behaviour is positive, cooperation skills are developed, self-control and self-confidence are high. Otherwise, the child is insecure, has a weak attachment to the parents, low self-esteem and lack of motivation. It is also emphasised (Līdaka, Samuseviča, & Strazdiņa, 2018) that one of the elements of positive parenting is knowledgeable parents who are clearly aware of the peculiarities of the child's age stage and are familiar with the basic conditions of child rearing. This means that as the child grows, parents need to continue to improve their knowledge as the child's age changes, which can lead to crises in parent-child interaction that require the involvement of a social worker.

More than 40 years ago, researchers (Michelson, Sugai, Wood, & Kazdin, 1983) pointed out that praising a child for positive behaviour contributes to the development of social skills, and this is still the case today. Social skills are considered (Witt & Ferris, 2003) to be a component of social behaviour that individuals need in order to interact with each other and receive feedback. Developed social skills enable young children to use a variety of

important communication approaches such as: being empathetic, empathising with peers' problems, developing stages of conflict resolution, listening to others and working in teams (Cimen & Kocyigit, 2010). Social skills are one of the most important skills, as these skills help children to make friends, fit into groups and develop their personality (Marinho - Casanova & Leiner, 2017), so this aspect should be given sufficient attention and consideration in social work with families with children. Children should acquire social skills by the time they reach school, as the intensive period of skill acquisition is the early preschool years, when children begin to learn existing social processes most rapidly (Mendo - Lázaro, León Del Barco, Felipe-Castaño, Polo-del-Río, & Iglesias-Gallego, 2018), so social work with families with children should pay special attention to this age.

In view of the above, the aim of the study is to find out what kind of social skills deficit in pre-school children is observed by social workers in their work with families with children, as well as the role and necessity of social skills development support group activities in social work with families with children by conducting a questionnaire survey in social services of Latvian municipalities about the benefits of this social service. The study concludes with findings on the causes of the social skills gap in families with children and the important role of support groups in social work with families with children in Latvia as an additional tool for social workers to help families with children integrate into society and develop these missing social skills.

The value of social skills for positive child development

One of the reasons for behavioural problems and deviant behaviour in young people, which can lead to delinquency, is the lack of early intervention when the child's needs were not met by an adult at an early age (Stankus - Viša, 2015).Therefore, in social work with families with children, it is important to provide support as early as possible, especially in families with preschool and school-age children, or where parents have a marked lack of social skills and insufficient knowledge in the emotional upbringing of the child. For example, a study was conducted in Turkey between the 2016 and 2017 school years (Gurbuz & Binnaz, 2018), which analysed the development of social skills in preschool-age children (2-6 years) in relation to parental occupation, number of children in the family and parenting principles. It finds that children raised by mothers with democratic and positive attitudes have more developed social skills than children whose mothers use authoritative parenting styles, which is likely related to parental responses to child behaviour. The study concludes by recommending the following support measures to improve social skills: outreach activities for parents, inclusion of parents in social skills programmes, implementation of services where mothers with pre-school children can participate in group activities together (Gurbuz & Binnaz, 2018).

Research published in 2015 (Robert Wood Johnson Foundation, 2015) shows that kindergarten students with social skills such as sharing and cooperation are more likely to achieve higher levels of educational attainment. The findings from this study support the value of early learning and the potential to increase children's chances of future success in school, work and personal life by helping them learn social skills. The study also found that children with poorer social skills were 64% more likely to be sent to a juvenile detention centre, 67% more likely to be arrested as an adult, 52% more likely to have an alcohol problem and 82% more likely to use cannabis. The research team believes that implementing effective, evidence-based programmes to develop and improve children's social skills at an early age can result in significant cost savings over time - savings that would be achieved through reduced incarceration costs, addiction treatment programmes and support for public spending (Robert Wood Johnson Foundation, 2015).

Support groups as an important social service in social work with families with children

In social work with groups, there are different types of groups, one of which is support groups. It is pointed out (Kirst-Ashman & Grafton, 2009) that support groups are based on self-help and are professionally and purposefully led to address a problem, solve a difficulty or turn a life situation into a positive one. Support group work focuses on the development and growth of the group members. Peer support in a group aims to improve the social competence and psychological well-being of the participants in order to contribute to a better quality of life (Kirst-Ashman & Grafton, 2009). Inese Stankus-Viša (2015) points out that in a support group special attention is paid to psychosocial areas of a person, such as experiences (positive, negative experiences and the ability to learn from them), value orientation and attitudes, mutual support, knowledge acquisition and the way of acquiring knowledge, identification of needs, resources and opportunities, future vision (self-development perspective).

The aim of the Family Support Group is to promote the recovery of families and to improve the living conditions of parents and children. The support groups help families to become aware of their existing resources and to use them in their daily lives, strengthening and building their confidence and strength to apply the skills they have learnt in their future lives. The activities of the family support groups can take place on four levels: ongoing support (regular meetings with children and parents, spending time together, involvement of representatives of other organisations), organisation of events (camps and celebrating holidays together), social and psychological support (various trainings, thematic evenings on topics relevant to families, other activities and games), economic support (free events and provision of transport) (Biedrība «Latvijas Sarkanais Krusts», 2019).

For example, the "Dardedze" Centre runs a support group programme for expectant or new parents called "Guardian Angel". The aim of the support group is to support and educate parents in the care and education of a child up to the age of two. Participants in the group meet each other, exchange impressions and experiences, learn skills in the areas of child education and care, the establishment of a support system and integration into society. The knowledge gained can serve as a basis for building safe and respectful family relationships and establishing new traditions (Centrs Dardedze, 2021). The "STOP 4-7" Early Intervention Programme (or "Together on the Road We Are Stronger") is a multimodal (working with the child, parents and teachers in separate groups) early intervention programme for children who are aggressive or easily irritated - lose their temper, take offence easily, behave defiantly, argue, ignore rules, annoy and blame others, hit, kick, fight, throw and tear things. The programme is free and open to any community, but the community must provide the facilities and technical equipment. The aim of the programme is to reduce children's problem behaviour by teaching parents the principles of positive parenting and training parents to use positive discipline techniques in their daily lives. Benefits after the full programme: children's aggressive behaviour decreases relatively quickly and the changes are sustained after 6 and 12 months; children learn problem-solving skills and challenging and aggressive behaviour gradually decreases. In turn, parenting practices change after parent training: physical punishment of the child is reduced and the positive parenting model is reinforced (Ministru Kabinets, 2023).

Looking at good practice in other countries (Nordic countries) with similar support groups in social work with families with children, it is concluded that successful good practice can be observed in the Swedish capital Stockholm, where the parenting support programme KOMET (COMmunication METhod) is implemented. This approach focuses on parents who are often in conflict with their child, as well as parents who find it difficult to

deal with conflict situations. The COMET programme is based on international research and promotes interaction between parents and children by applying social learning theories. The programme, with an individual support plan, is designed for parents with young children (3-11 years) and adolescents (12-18 years) (Marklund, Andershed, & Andershed, 2012). Also worth mentioning is “The Incredible Years” support programme developed by Carolyn Webster-Straton, a psychologist and researcher in the United States, and implemented in Denmark. It is aimed at parents of children aged 3-12 with emotional and behavioural difficulties. “The Incredible Years” programme teaches parents how to promote positive development in their children in two ways: through games, praise and a reward system aimed at improving the parent-child relationship. And, the second direction is that parents learn how to reduce their children's behavioural problems (Marklund, Andershed, & Andershed, 2012). The support programmes for families with children who lack social skills are a real example of how support groups in the Nordic countries aim to support parents, educate and nurture parenting potential, and involve both children and parents in shared leisure time with elements of social learning theory and play.

Methodology

The aim of the study was to explore the theoretical findings on the impact of parenting practices on children's emotional development and the factors influencing the acquisition of social skills, as well as the role of support groups as a community resource and the involvement of the social worker in promoting the development and acquisition of social skills in families with children. The research used theoretical research methods (literature and document analysis) and empirical research methods (structured questionnaire survey of social workers), data processing and analysis methods (data analysis using IBM SPSS v.22 predictive analysis and statistical analysis software package, Cronbach's alpha analysis, Kruskal-Walli's test). The study was conducted in the period from 29 August 2023 to 8 September 2023, the research base - social workers of all municipal social services in Latvia who work with families with children on a daily basis.

Based on the results of a literature review, an online questionnaire was developed asking respondents (social workers working with families with children) to rate the most frequently identified problems in families with children with whom social work is carried out, what social skills are lacking in pre-school children, their views on the need for early intervention and support groups, the services social workers use and recommend to improve the social skills of families with children, and their views on the difficulties and benefits of organising support groups. The questionnaire consisted of 10 closed and open-ended questions, including multiple choice questions and a Likert scale, which is an ordinal scale that asks the respondent to rate the extent to which they agree or disagree with a series of statements. The survey was conducted among respondents (n=59) from all regions of Latvia (all women), the average age of respondents was 45.4 years, and respondents held positions such as social workers working with families with children, heads of family support units, social workers working with young people, as well as "universal" social workers who work with all target groups of social work on a daily basis.

Research results

The results of the questionnaire were evaluated using Cronbach's alpha test and the test result (α = 0,703) showed good internal consistency, indicating that the results of the questionnaire are reliable. A Pareto chart was used to analyse the responses to the most frequently identified problems in families with children with whom social work is carried out

(respondents were allowed to choose several answers, but not more than four) (the data can be seen in Figure 1), thus giving special attention to the first three social problems (or in 80% of cases there are 2-3 main reasons why a family comes to the attention of the social services) faced by families at social risk, which should be the main concern when developing new social services, including support groups. It can be concluded that the most frequent are families in which the parents lack the necessary parenting skills (n=46), followed by families with violence (n=41) and parents with addiction problems (n=32).

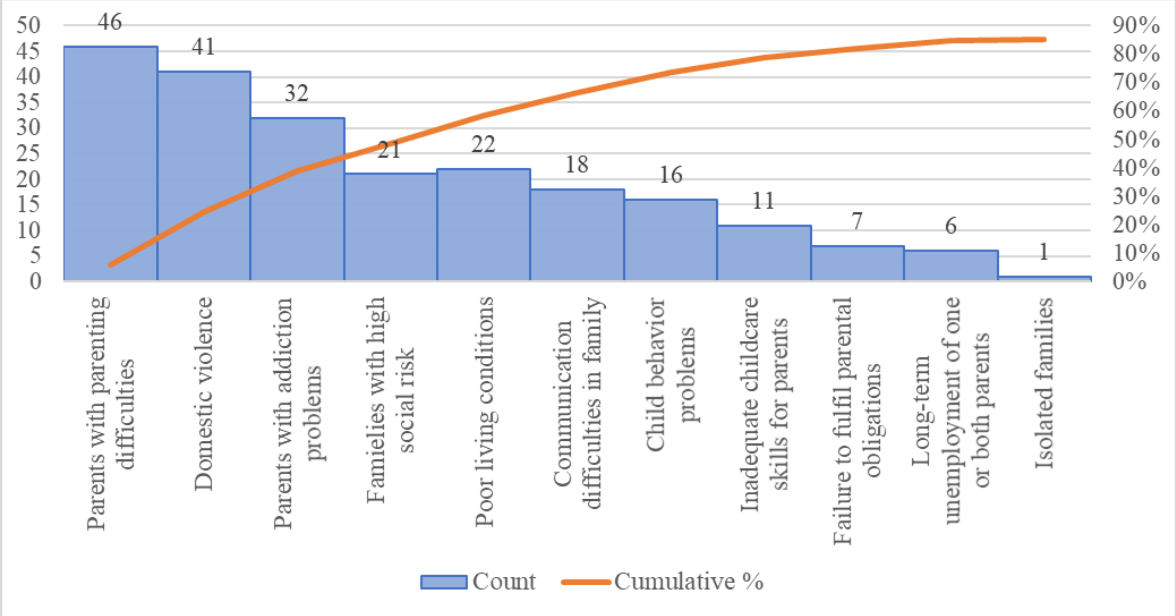

Figure1 ***Social problems observed in families with children receiving social work services*** *(made by authors)*

These social problems can be defined as consequences that bring families to the attention of social services, and the lack of parenting skills of parents is one of the main reasons why children develop a lack of social skills at an early age (Līdaka, Samuseviča & Strazdiņa, 2018). The causes with the lowest impact on families with children are isolation (n=1) and long-term unemployment of one or both parents (n=6). This can be explained by the fact that socially isolated families are practically non-existent in Latvia, as all families with children are more or less involved in social processes (compulsory pre-school and primary education, supervision of children by family doctors, etc.). However, long-term unemployment can be misleading for parents, as a certain part of society works informally, without a contract, but with an income.

However, if such social problems persist in a family, children also suffer because children learn or do not learn the basics of socialisation in the family, e. g. if they grow up in a family where the parents themselves do not have adequate skills in daily household maintenance, maintaining a tidy environment or personal hygiene, children will not have such skills either (Ajilchi & Kargar, 2013). Therefore, respondents were asked to tick the most common social skills lacked by pre-school children from families with whom social work is carried out. The findings from the literature review were confirmed in the survey results, as the most frequently selected responses (respondents had the option of multiple choice) were identified when the fraction test was administered, and the social skills that were significantly lacking in these children were:

1. lack of politeness, self-control and manners (n=39);
2. difficulty in forming relationships (n=30);
3. lack of hygiene skills (n=26);

4. lack of cooperation skills (n=22);
5. poor self-care skills (n=18).

The diversity of social services in Latvia for families with children is positively assessed, as respondents had the opportunity to tick the social services available in their municipality and rank them according to their usefulness in improving the social skills of the families with children with whom social work is carried out. Of the total number of respondents (n=59), the majority (n=37) answered that they have access to support groups for families with children, and it is support groups for parents with children that social workers working with families with children (n=28) rate as the second most important social service that contributes positively to social work with families. The most suitable social service in the results was the family assistant service (n=48), which is explained by the fact that this social service is available in every municipality in Latvia and social workers appreciate its effectiveness. On the other hand, self-help groups are not available in every municipality and this fact has already been discussed above. The third important social service according to the respondents (n=27) is the Guardian Angel support group, which has already been mentioned as an example of good practice in the literature review (Centrs Dardedze, 2021).

Although the majority of respondents (n=32) believe that the most appropriate support groups to improve the social skills of families are groups that provide activities for parents with their children, using Kurskal-Walli's test, significant differences were found between the evaluation of approaches and methods of group activities and the region represented by the respondent (professionals had the opportunity to evaluate the given approaches and methods), as shown in Table 1.

Table 1 ***Comparison of different approaches and methods of assessment by region of the respondent*** *(made by authors)*

Method or approach in a support group for parents with children	*Region in Latvia*	*Mean Rank*
Informative session	Kurzeme region	33,50
	Zemgale region	18,13
	Vidzeme region	31,36
	Latgale region	16,88
	Riga and peripheral regions	37,29
Informal approach ("tea table", catering, free conversations, discussions)	Kurzeme region	28,76
	Zemgale region	24,50
	Vidzeme region	30,50
	Latgale region	21,00
	Riga and peripheral regions	38,00
Active methods for parents with their children (games, drama) based on social learning theory	Kurzeme region	26,21
	Zemgale region	33,00
	Vidzeme region	35,79
	Latgale region	17,00
	Riga and peripheral regions	36,56

Source: Survey of social services in Latvian municipalities.
n=59

Table 1 shows that professionals in Riga and the Baltic Sea Region have the highest opinion of the approaches and methods offered, but the lowest opinion in Latgale, for example, the informal approach of support groups for families with children is even rated very positively in the Latvian capital region (mean rank = 38.00), while the same approach is rated much lower in Latgale (mean rank = 21.00). According to this difference it can be concluded that the evaluation of Riga and the Baltic Sea Region is based on experience,

because in the capital city of Latvia many services and activities are implemented that focus on the needs of families, therefore social workers appreciate their positive impact on social work with families with children and are familiar with these approaches and methods in group work. However, in Latgale region support groups for families with children are not a common practice, as the majority of social workers (n=5), in general respondents from Latgale (n=7) representing the mentioned region answered that the municipality does not have such a social service (n=5), which explains the low evaluation of the given approaches and methods by specialists from Latgale region. At the same time, specialists agree on the positive benefits of support groups for families with children, e. g. parents in support groups are convinced that they are not alone and that others have similar problems (n=28), children together with their parents develop social skills (n=25), and over time group members become more open, find new friends and improve their communication skills (n=21).

At the end of the survey, social workers were asked about the main barriers to organising more support groups for families with children in their area and the main barriers were parents' reservations (n=30), funding (n=14) and lack of transport for themselves or clients (n=11). This suggests that a number of preparatory steps need to be taken before support groups can be set up: motivational work needs to be done with parents to get the group up and running, and professionals need to negotiate funding and transport with local authority social services.

Conclusion

The family is the primary environment for every child to learn the values, behavioural norms and social skills needed in everyday life, but in socially vulnerable families the acquisition of such knowledge and skills may be limited, which is why it is necessary to provide such families with children with the earliest possible support (early intervention). The most common social problems in families with which social work is carried out in Latvia are parents' insufficient knowledge and skills in raising children, violence and addiction problems, and lack of social skills in preschool children from these families, such as behavioural problems, difficulties in peer relationships and lack of hygiene skills. Support groups are a valuable and important social service to address social skills deficits, as social work with groups can help multiple stakeholders at the same time - parents, children and the family system as a whole. Social workers in Latvia value support groups as a necessary resource and most professionals use this opportunity in their daily work with families with children, if this service is available in the municipality. At the same time, different regions of Latvia have different perceptions of the approach and methods of support groups, depending on professionals' previous experience with support groups and their interest in general. Taking into account the results of the study, it would be useful to introduce a social skills development support group in every Latvian municipality, which would be available to families with children in both urban and rural areas. The knowledge of the social worker working with families with children about the approaches and methods of group work, the support of the social service management in setting up such support groups, as well as the motivation of parents to participate in group activities are also important aspects of the organisation of the groups, as these can be significant obstacles that hinder the development and implementation of support groups.

References

Ajilchi, B., & Kargar, F. R. (2013). The Impact of a Parenting Skills Training Program on Stressed Mothers and Their Children's Depression Level, *Procedia-Social and Behavioral Sciences, 84*, 450-456. DOI: https://doi.org/10.1016/j.sbspro.2013.06.583

Biedrība «Latvijas Sarkanais Krusts». (2019). *Rokasgrāmata ģimeņu atbalsta grupu vadītājiem.* Retrieved from https://www.redcross.lv/uploads/2019/12/rokasgr%C4%81mata-%C4%A3ime%C5%86u-atbalsta-grupu-vad%C4%ABt%C4%81jiem.pdf

Centrs Dardedze. (2021). *Atbalsts izglītošanai atbalsta grupai "Sargeņģelis"*. Retrieved from https://centrsdardedze.lv/projekti/aktualie-projekti/atbalsts-izglitojosajam-atbalsta-grupam-sargengelis/

Cimen, N. S., Kocyigit, A. (2010). Study on the Achievement Level of Social Skills Objectives and Outcomes in the Preschool Curriculum for Six Years Old, *Procedia Social and Behavioral Sciences, Vol. 2*, 5612-5618. DOI: https://doi.org/10.1016/j.sbspro.2010.03.915

Gurbuz, E. & Binnaz, K. (2018). Research of Social Skills of Children Who Attend to Kindergarten According to the Attitudes of Their Mothers. *Journal of Education and Training Studies, 6 (3),* 95 – 100. DOI: https://doi.org/10.11114/jets.v6i3.2831

Līdaka, A., Samuseviča, A. & Strazdiņa, I. (2018). *Profesionālā pilnveide sociālajā darbā*. Liepāja: LiePA.

Marinho - Casanova, M. L., & Leiner, M. (2017). Environmental influence on the development of social skills in children. *Extensio: Revista Eletrônica De Extensão*, *14*(26), 2-11. DOI: https://doi.org/10.5007/1807-0221.2017v14n26p2

Marklund, K., Andershed, H. (2012). *Nordic children Early intervention for children and families.* Retrieved from https://nordicwelfare.org/wp-content/uploads/2018/02/5ENG_LR.pdf

Mendo - Lázaro, S., León Del Barco, B., Felipe-Castaño, E., Polo-del-Río, M. I., & Iglesias-Gallego, D. (2018). Cooperative team learning and the development of social skills in higher education: the variables involved. *Frontie rsinpsychology, 9*. DOI: 10.3389/fpsyg.2018.01536

Michelson, L., Sugai, D. P., Wood, R. P., & Kazdin, A. E. (1983). Social skills and child development. In social skills assessment and training with children. *Springer* (Pp. 1-11).

Ministru kabinets. (2023). *Programma "STOP 4-7."* Retrieved from https://www.mk.gov.lv/lv/programma-stop-4-7

Robert Wood Johnson Foundation. (2015). *How Children's Social Skills Impact Success in Adulthood.* Retrieved from https://files.eric.ed.gov/fulltext/ED592871.pdf

Stankus-Viša, I. (2015). Sociālais darbs ar grupu kā psihosociālā konsultēšana. In *Psihosociālais sociālais darbs sistēmiskajā pieejā. Teorija un prakse* (59-72). Jūrmala: Nodibinājum "C modulis".

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2021). Izglītība ilgtspējīgai attīstībai. Ceļvedis. Retrieved from https://www.unesco.lv/lv/media/331/download?attachment

Witt, L. A., Ferris G. R. (2003). Social Skills as Moderator of the Conscientiousness – Performance Relationship: Convergent Results Across Four Studies, *Journal of Applied Psychology*, Vol. 88, No. 1, 809-821. DOI: https://psycnet.apa.org/doi/10.1037/0021-9010.88.5.809