

Digital Technologies in Pre-school Education in the Czech Republic and Norway

Marie Bajnarová, Palacký University in Olomouc, Czech Republic
René Szotkowski, Palacký University in Olomouc, Czech Republic

The IAFOR International Conference on Education in Hawaii 2024
Official Conference Proceedings

Abstract

This paper presents the results of a research project that aims to interpret the differences or similarities of pre-school education (PE) in the Czech Republic and Norway. Using Bereday's methodological comparative model, this study specifically focuses on a comparison of the anchoring of the importance of digital technologies in the Czech The Framework Educational Programme for PE and the Norwegian The Framework Plan for the Content and Tasks of Kindergartens. The study highlights the notion of digital technology in PE mainly because of the educational innovations in schools from 2020 onwards in the context of the digitization triggered by the closure of schools at the time of the COVID-19 measure. With the upcoming changes in Czech education, kindergartens need to develop (not only) the basics of algorithmic, logical and computer thinking in children, but also to focus on the need for kindergartens to keep up with technical and social developments, as digital technologies are now a common part of the world around us. It should also be the intention of PE teachers that children gradually become familiar with digital technologies and learn to use them to their advantage and avoid risks. The aim of this content analysis is to provide a comparison of curricular approaches to digital technologies through an analysis of PE frameworks in the Czech Republic and Norway.

Keywords: Pre-school Education, Digital Technologies, Bereday's Methodological Comparative Model

iafor

The International Academic Forum
www.iafor.org

Introduction

The aim of the paper is to interpret the differences or similarities of preschool education (PE) in the Czech Republic (CZE) and Norway (NOR). At present, CZE is undergoing a revision of the framework educational programmes from pre-primary education to secondary vocational education. In 2021, there was a so-called minor revision and now a so-called major revision is underway. For our purposes, we are based on the valid Framework Education Programme (FEP) for PV, which is effective from 1 September 2021 (MEYS, 2021). As far as the Norwegian Framework Plan for Kindergarten is concerned, we are based on the regulations on the nursery school (NS) Framework Plan for the Content and Task updated on 1 August 2017 (udir.no, 2017). Since the FEP is being revised in CZE, which is also based on the Strategy of Education Policy of CZE 2023+ (S2030+), the focus on digital technologies in FEP PE is also key for us, as the goal of this S2030+ is to modernize education so that children can stand up to the dynamic and ever-changing world of the 21st century. S2030+ was approved by the Government of the CZE by its resolution of 19.10.2020 and is the basic document of The Ministry of Education, Youth and Sports (MEYS), which determines the work, objectives, and tools of education policy. The S2030+ also responds to current trends, such as the perception of technological progress as a revolution in the field of digitization. Furthermore, S2030+ aims to continuously improve the quality of PE and involve more and more children in it. To improve quality, S2030+ sees a transformation of the content of education with an emphasis on key competencies, support for teachers and individualized work with children. It also justifies the need to adjust the content of FEP PE and update the content of education in schools, which also means supporting children's motor development, physical activity and fitness, initiative, independence, problem solving, creativity, teamwork, and the use of age-appropriate technology (Strategy 2030+, 2020).

As far as Norwegian early childhood education and care is concerned, we find inspirational stimuli in the content of the NS. The Norwegian Plan of the Content and Tasks of the NS is a regulation to the NS Act and was updated in 2017 (Regjeringen.no, 2023). The Framework Plan stipulates that the content of the NS must be comprehensive, varied and adapted to each individual child and group of children. The concept of the Norwegian Framework Plan is based on the idea that all children must experience a safe environment for play, development and learning in quality NSs with sufficient staff with good expertise. The Norwegian Framework Plan is a governing document for Norwegian NS, which is based on the Nordic traditions for NS. This tradition is an example of good practice, a model associated with high standards from an international perspective, advocating a socio-pedagogical attitude that emphasizes the intrinsic value of childhood and promotes the versatility of the child's development. The Framework Plan builds on the tradition of Norwegian NSs, where play has a central place while considering everyday life in NS, parents' expectations, and does not neglect digital tools in education and digital practice to contribute to young children's play, creativity, and learning (Regjeringen.no, 2023).

Methodology: Background and Setting of Research Goals

For the analysis and comparison of curricular documents, we used Bereday's model of comparison. According to Bereday (1964), it is possible to record different cultures and political geography thanks to comparative education, and for this reason it should be essential that, for example, researchers in comparative pedagogy get acquainted with different cultures. Comparative pedagogy aims to understand the different methodologies of education

in different regions at the international level, and the differences found in these regions are based on differences in culture and are essential for understanding the education system in these regions. Therefore, the comparison of the education system helps in shaping better education systems in different countries through learning from the weaknesses and strengths of education systems from other cultures. The scientific dimension of comparative education relates to the construction of theory, whereby comparison is necessary to understand what relationships occur, under what conditions between variables in the education system and society (Torres et al., 2022).

For comparison, the classic Bereday's methodological comparative model from 1964 was used, which is composed of four phases, i.e.:

Phase I: Description: Description of the contexts of CZE and NOR

Phase II: Understanding (Interpretation): Creating topics and data interpretation

Phase III: Juxtaposition: Describing the most important similarities and differences, and an overview of them

Phase IV: Comparison: Comparison of the framework plans of PE CZE and NOR towards the answer to the research questions

Phase I: Description

In the first phase, called description, we describe the current state of FEP PE issues in selected countries. For a more in-depth description, it was necessary to focus on the vision of key educational areas (EAs) of individual curricular documents at the national level. The theoretical part of this thesis looks at the issue of PE in selected countries of general character.

The Current Form of the Czech FEP PE

FEP PE appeals to complement and support family education, aims to provide the child with an environment with enough multifaceted and adequate stimuli for his or her active development and learning. According to FEP PE, NS should be an enrichment of the child's daily program during his or her preschool years. A PE teacher should provide the child with professional care and facilitate the child's further life and educational path, i.e. support the development of the child's personality, physical development and health, satisfaction, well-being, help the child to understand the world around him and motivate him to further cognition and learning, as well as teach the child to live in the company of others and bring him closer to the norms and values recognized by society.

The Current Form of the Norwegian the Framework Plan

The Framework Plan stipulates that the content of the NS must be comprehensive, varied and adapted to each individual child and group of children. In NS, children are supposed to play and explore their creativity, sense of wonder and curiosity. The NS must work purposefully with the development and learning of children, motivate them to communicate, develop their language and social competences. The Framework Plan understands childhood as a phase of life with intrinsic value, i.e. the NS must be an inclusive community with space for every child.

Phase II: Interpretation

The second part, called interpretation, is focused on data collection, respectively. The aim of the interpretation is to understand the issue of PE formulated in the state curricular

documents of CZE and NOR, to find out what are the specifics in EAs in both documents, how approaches to digital technologies are defined. Bereday (1964) appeals at this stage to pay attention to factors such as historical, political, economic or social, but our attention is focused on curricular documents, and for this reason we have conceived the interpretation and analysis in terms of appearance and have chosen a qualitative approach by means of which it has been possible to penetrate the phenomenon under investigation and understand existing relationships or differences. During the interpretation and subsequent analysis, we used the content analysis of written documents as a basic research method, which we carried out in a non-quantitative way.

Specifically, we were interested in two topics:

1. Topic: EAs in PE
2. Topic: Anchoring digital technologies in PE

The content dimension of the documents was assessed through the above-mentioned topics and was monitored based on the structure of the documents.

Features of the current form of the Czech FEP PE – Main principles, EAs and digital technologies:

- Acceptance of natural developmental specifics of preschool children.
- Enabling the development and education of each individual child to the extent of their individual possibilities and needs.
- Creating space for the development of various programs and concepts as well as for the individual profiling of each NS. Enabling the NS to use various forms and methods of education and to provide framework criteria that can be used for internal and external evaluation of the NS.
- Each EA includes interconnected categories:
 1. Partial goals: what the teacher should observe and support in the child during the PE course.
 2. Educational offer: A set of practical and intellectual activities suitable for the fulfilment of objectives and for the achievement of outputs. Offering a variety of activities tailored to the specific possibilities and needs of children.
 3. Expected outcomes: Outcomes are formulated for the time when the child is completing PE, with the understanding that their achievement is not mandatory for the child. During his/her work, the teacher monitors the process of acquiring these competencies both within the children's class and in individual children.
- The FEP PE includes five EAs, i.e.:
 1. Child and body.
 2. Child and psychics: 2.1. Language and speech. 2.2. Cognitive abilities and functions. 2.3. Imagination and fantasy. 2.4. Intellectual operations. 2.5. Self-concept, feelings, will.
 3. Child and the other.
 4. Child and society.
 5. Child and the world.
- The current FEP PE from 2021 lacks a link to digital technologies, which are part of the 2020 S2030+ document. The Strategy states that *"We will adapt the education system so that it is able to adequately adapt to the dynamic environment and progress associated with the development of new technologies, digitization and internationalization."* (Strategy 2030+, 2020) Furthermore, the S2030+ appeals,

firstly, to the appropriate and age-appropriate use of digital technologies, which should be a matter of course in all areas of education, and secondly, to technologies, which should be a tool for the development of new methods and forms of education and assessment. Subsequently, in the PE Support, the justification for the need to adjust the content of the FEP PE and to update the content of education in schools is mentioned to consider *"support for the acquisition of key competences, support motor development, physical activities and fitness of children, initiative, independence, problem solving, creativity, teamwork or the use of age-appropriate technologies."* (Strategy 2030+, 2020) It is to be hoped that digital technologies will be included in the ongoing process of adapting the FEP PE, or that the development of initial digital literacy will be mentioned.

Features of the current form of the Norwegian the Framework Plan – Main principles, EAs and digital technologies:

- The content of the NS must be versatile, varied and adapted to the individual child and the group of children.
- Work with care, upbringing, play, learning, social competence, and communication must be seen in context and jointly contribute to the all-round development of children.
- The Sámi NS should be based on the Sami language, culture, and traditional knowledge.
- NS is intended to be a cultural arena where children are co-creators of their own culture in an atmosphere characterized by humor and joy.
- The NS environment must be safe and provide children with a versatile physical experience (Udir.no, 2017).
- The Norwegian the Framework plan contains seven EAs, i.e.:
 1. Communication, language and text.
 2. Body, movement, food and health.
 3. Art, culture and creativity.
 4. Nature, environment and technology.
 5. Quantities, space and shape.
 6. Ethics, religion and philosophy.
 7. Local community and society.
- Digital technologies are highlighted in the following chapters, i.e.:
 1. NS Digital Practice:

NS is intended to contribute to children's play, creativity, and learning, and during the use of digital tools in educational work, this should support children's learning processes and contribute to the implementation of the guidelines of the Framework Plan for a rich and versatile learning environment. During the use of digital tools, staff must be active with children and the tools should be used with caution. NS is intended to help children develop their initial ethical understanding related to digital media. Staff must:

 - Exercise digital judgment and protect children's privacy.
 - Enable children to discover, play, learn and independently create digital content of expression.
 - Assess the appropriateness of children participating in media use.
 - Explore creative uses of digital tools together with children.

2. EA – Art, culture and creativity:
Through working with art and creativity, NS is to ensure the use of a variety of techniques, materials, tools, and technologies so that the child can express themselves aesthetically.
3. EA – Nature, environment and technology:
NS must allow children to have a variety of experiences of nature and must allow them to remain curious about scientific phenomena, experience belonging to nature and gain experience in the use of technology, e.g.: making constructions in different materials and exploring the possibilities that lie in tools and technologies. The staff must also explore and experiment with technology and natural phenomena together with the children.
4. EA – Quantities, space and shape:
In this section, it is mentioned that NS must enable children to discover mathematics in everyday life, in technology, also in nature, art and culture. A preschool child should playfully experiment with numbers and counting. The child should explore the properties of shapes and experience the joy of mathematics. Books, games, music, toys, natural materials, and digital tools should be offered to encourage children to think mathematically.

Phase III: Juxtaposition

The third step is juxtaposition, which aims to create a framework for comparison. In this step, the similarities and differences that can be read from the curricular documents for the PE of the selected countries are described. These similarities and differences form the basis for the fourth and final step, i.e. the actual comparison.

The Main Principles of EAs in the Czech FEP PE

EA Child and body is aimed at promoting the growth and neuromuscular development of the child, his physical well-being, improving his physical fitness and improving his health culture, learning self-care skills, and guiding children towards healthy lifestyle habits. EA Child and psychics aims to support the child's mental well-being and mental fitness, resilience; development of intellect, speech and language, cognitive processes and functions, his feelings and will, self-concept, creativity, and self-expression; Encouragement to further development, cognition, and learning. The third EA called Child and the Other, supports in shaping the relationships of a child with another child and adult; strengthening, cultivating, and enriching their mutual communication and ensuring the well-being of these relationships. There is also a focus on board games, social games, and other playful activities in this section. EA Child and society accompanies the child into the community of other people and introduces the child to the rules of coexistence with others, as well as to the world of material and spiritual values, the world of culture and art. EA Child and world introduces the child to the surrounding world and its happenings, it also teaches the child about the impact of humans on the environment, learning about other cultures. In this EA, the child gains an awareness of animate and inanimate nature, of people and society, and of planet Earth.

The Main Principles of EAs in the Norwegian Framework Plan

EA called Communication, language and text, aims to develop children's language understanding and competence through various forms of communication. EA offers the communication of texts, stories as a source of aesthetic experiences, reflection and encounters with language and culture. EA Body, movement, food and health allows space for the joy of movement, the joy of eating. Here, emphasis is placed on psychological and social

well-being, the physical and mental health of the child and learning about the human body, hygiene habits and a varied diet. The third EA Art, culture and creativity supports the child in their own artistic expressions; offers encounters with a diversity of artistic and cultural forms and exploration of art and cultural experiences; It also allows for joy and pride in one's own cultural belonging. It also offers opportunities for children to learn about diverse traditions and artistic expressions from the past and present. The fourth EA Nature, environment and technology allows children to have a variety of experiences in nature, and NS must allow children to remain curious about scientific discoveries, experience belonging to nature, and gain experience in the use of technology and tools. The fifth EA Quantities, space and shapes is focused on exploring and understanding the connections in nature, society, and the universe. Children are offered both discovering playful mathematics and motivating them to solve problems, as well as playing and experimenting with numbers, exploring the properties of shapes and mathematical problems. EA called Ethics, religion and philosophy, allows the child to learn about traditions, values, holidays in different religions and worldviews. It also offers an exploration of existential, ethical, and philosophical questions; reflecting basic norms and values; Developing respect for oneself and other people. The latest EA Local community and society, appeals to the fact that NS contribute to knowledge and experience with local traditions, social institutions, and professions so that the child feels a sense of belonging to the local environment. Through play, the child is supposed to gain experience in listening, discussing, and knowing about human rights.

Anchoring of digital technologies in the Czech FEP PE and in the Norwegian the Framework Plan:

- There is no anchoring of digital technologies in the Czech FEP PE. Digital technologies are not offered in EAs and PE educators are not encouraged to use them in their educational practice.
- In the Norwegian the Framework plan, digital technologies are anchored both in the offer within the NS Working Methods, i.e. NS Digital Practice, as well as within the three EAs.

Phase IV: Self-Comparison

The last step is focused on the comparison itself and brings a comparison of the identified similarities and differences of the already mentioned issues.

Similarities and Differences of the Issue

The Czech FEP PE has five EAs and each area contains a brief description, partial educational objectives, educational offer, expected outcomes and risks. In the Czech FEP PE, the areas are extensively described, and the text contains a lot of information and instructions, some educational offers are repeated. Compared to the Norwegian Framework Plan, it is more comprehensible and specific, i.e. The text deals with a clear description of the EAs, provides concise points that the child should experience or learn during the educational process, and each area is also focused on targeted activities that the staff must carry out. If we specifically focus on individual EAs in the Czech FEP PE, the area of Child and body focuses on awareness of one's own body, the development of senses and the physical and mental fitness of the child. The educational offer then offers to offer children sufficient physical activities, psychomotor games, self-service activities with personal hygiene, etc. The joy of movement, food and a healthy lifestyle is also brought by the EA of the Norwegian Framework Plan, which also appeals to the child to gain a positive self-perception and confidence in their own body. An interesting stimulus here is cooking, during which the child

should experience joy and discover the taste of food. There are also stimuli for experiencing joy and well-being during versatile movement experiences inside and outside, in any weather.

The EA called The Child and psychics in the Czech FEP PE is divided into other areas, i.e.:

- Language and speech: an area focused on the development of speech skills and language skills; the teacher should offer children joint discussions, storytelling, commenting on experiences, dramatization or singing. A similarity can be found in EA's Norwegian Framework Plan called Communication, language and text, which includes both the development of communication, vocabulary expansion, as well as experimentation with words and an emphasis on storytelling, speaking and singing.
- Cognitive abilities and functions; Imagination and fantasy; Intellectual operations: the EAs focused on the development of creativity, the educational offer concerns e.g. observation of natural, cultural objects and phenomena in the environment, observation of common objects, manipulation with objects and examination of their properties, free play and experiments with objects, familiarization with elementary numerical and mathematical concepts. As far as mathematical skills are concerned, it should be mentioned that the Norwegian the Framework Plan has a more elaborate separate chapter on the development of understanding of basic mathematical concepts.
- Self-concept, feelings, will: in this area, the teacher develops children's self-control, moral and aesthetic perception, feeling and experiencing; the educational offer includes both spontaneous play and aesthetic and creative activities, watching fairy tales and naming emotions). A similarity can be found in the educational area of the Norwegian Framework Plan called Communication, language and text, which includes both the development of communication, the expansion of vocabulary and experimentation with words.

The Czech FEP PE contains EA The Child and the Other, which aims to familiarize the child with the rules of behavior in relation to the other, the child should acquire skills important for developing relationships with other people, and prosocial behavior is strengthened. The educational offer includes an incentive for interactive games, role-playing, cooperative activities in groups and playful model situations in which the child should learn to respect others. In the Czech FEP PE, EA is Child and society, which has the task of teaching children to live in the community of other people and to perceive recognized basic values. Children should learn about interpersonal moral values and have a basic knowledge of the existence of other cultures and nationalities. The educational offer offers, for example, the realization of social entertainments and festivities, as well as encounters with cultural life outside the NS and learning about events interesting for preschool children. The last EA in the Czech FEP PE is The Child and world, in which the teacher is supposed to introduce the child to the local environment in which the child lives. The child should acquire knowledge about a healthy and safe environment. The teacher should develop the child's ability to adapt to the conditions of the external environment and its changes. Similar intentions from the above-mentioned areas of the Czech FEP PE can also be seen in the EA of the Norwegian Framework Plan called Local community and society, which aims to introduce children to the local environment, local traditions, and culture.

The Czech FEP PE does not include an in-depth and detailed EA specifically on art, technology, mathematics, religion, and philosophy, as it is written in the Norwegian Framework Plan. Although creative stimuli, introducing the child to mathematics are mentioned in the Czech FEP PE EAs, these topics seem to be put in the background, as well

as religion and asking children philosophical questions or also the initiation of children into human rights, which are topics that are evident in the Norwegian Framework Plan.

The Norwegian the Framework Plan appeals to the use of digital technologies during education in NS, the Czech FEP PE, although it has it written in the visions of the S2030+ document, lacks a mention of the use of technology in NS.

Conclusion

The aim of the comparative research was to compare and analyse the content of the Czech FEP PE and the Norwegian Framework Plan in terms of the offer of EAs and following the use of digital technologies in PE. The principles of the Czech FEP PE include accepting the natural developmental specifics of children; enabling the development and education of each child within their individual abilities and needs; creating the basics of key competences; creating space for the development of various programmes and concepts and for the individual profiling of each NS; enabling the NSs to use various forms and methods of education and providing framework criteria for internal and external evaluation of the NS. The Norwegian Framework Plan appeals to NS to offer the child varied and individualized activities. The Norwegian Framework Plan also focuses on working with care, upbringing, playing, learning, social competences, and communication, which must be seen in context and contribute to the comprehensive development of children. The Sami NSs should be based on the Sami language, culture, and traditional knowledge. The Norwegian NS should be a cultural arena where children are co-creators of their own culture in an atmosphere characterized by humour, joy and the NS environment must be safe and provide children with a versatile movement experience. The Norwegian Framework Plan is a management document for the Norwegian NSs, and it is based on the Nordic traditions for the NS. This tradition is an example of good practice, a model associated with high standards from an international perspective; it holds a social pedagogical approach emphasizing the intrinsic value of childhood. We see a general agreement in both documents in, for example, familiarizing children with the local environment, nature, and culture and in developing children's language communication, healthy lifestyle, physical and mental fitness, teaching children to understand themselves or the feelings of other people, teaching children self-care, hygiene, and moral habits. We also see several differences in these two documents, for example in the issue of digital technologies, which is clearly described in the Norwegian Framework Plan. Digital technologies are not described in the Czech FEP PE and are missing in the text, although the Czech FEP PE, amended in 2021, should follow on from S2030+ published in 2020. The two documents also differ in the offer of topics, for example the Czech FEP PE does not include topics that are key for the Norwegian Framework Plan, these topics include: Outlining to children the issues of religion, racism, existence and philosophy, ethics, and initial knowledge of the importance of human rights (the Convention on the Rights of the Child). Compared to the Czech FEP PE, the Norwegian Framework Plan also puts emphasis on the fact that children should experience 'pride in their sense of cultural belonging'. The Norwegian Framework Plan also elaborated the issue of mathematical skills in children into a separate EA. Unlike the Norwegian Framework Plan, the Czech FEP PE has richly detailed educational sub-objectives, educational offer and expected outputs for each educational area, especially the educational area Child and Their Psyche consists of three parts; the Norwegian concept of EAs includes a brief description, child's output, and instructions for the staff. It seems that the Czech FEP PE is more focused on the development of the child's psyche and the Norwegian Framework Plan relates to the child's educational preparation for the value basis of education at primary school and thus builds more on the

areas that are part of the values and principles for primary schools, i.e. human dignity, identity and cultural diversity, ethical awareness, creative joy, respect for nature and democracy.

Acknowledgements

The paper was created as part of a student grant with a project number IGA_PdF_2023_014 Comparative study of pre-school education in the Czech Republic and Norway: Children's play and digital technology. Thank you, Palacký University in Olomouc.

References

- Bereday, G., Z., F. (1964). *Comparative method in education*. New York: Holt, Rinehart and Winston Publisher.
- MEYS.cz. (2021). *Rámcový vzdělávací program pro předškolní vzdělávání*. Praha: Ministerstvo školství, mládeže a tělovýchovy. <https://www.msmt.cz/vzdelavani/predskolni-vzdelavani/opatreni-ministra-zmena-rvppv-2021?lang=1>
- Regjeringen.no. (2023). *Early Childhood Education and Care*. Oslo: The Regjeringen. <https://www.regjeringen.no/no/tema/familie-og-barn/barnehager/early-childhood-education-and-care-polic/id491283/>
- Strategy 2030+. (2020). *Strategy for the Education Policy of the Czech Republic up to 2030+*. Praha: The Ministry of Education, Youth and Sports. <https://www.msmt.cz/vzdelavani/skolstvi-v-cr/strategie-2030>
- Torres, C. A., Arnove, R. F., & Misiaszek, L. I. (Eds.). (2022). *Comparative education: The dialectic of the global and the local*. Maryland: Rowman & Littlefield.
- Udir.no. (2017). *Framework Plan for Kindergartens: Contents and Task*. Oslo: The Norwegian Directorate for Education and Training. <https://www.udir.no/laring-og-trivsel/rammeplan-for-barnehagen/>

Contact email: marie.bajnarova@gmail.com