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# Continuity between Preschool and Primary Education: Integration of Pedagogical Technologies of the New Ukrainian School

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## Abstract

The transition from preschool to primary education is a critical stage in a child's development, as it is accompanied by a change in the educational environment, the nature of learning activities, the expectations of independence and approaches to pedagogical interaction. In the absence of coordination between the two levels of education, the competence-based and child-centered potential of the New Ukrainian School is implemented inconsistently, and the adaptive load is largely transferred to the individual child. The purpose of the study was to identify organizational, curricular, and pedagogical conditions for ensuring continuity between preschool and primary education; the analysis focused on pedagogical approaches, technologies and tools suitable for consistent application at adjacent educational levels. The study was conducted in the form of a structured thematic review of 30 scientific and analytical works and a comparative analysis of nine Ukrainian regulatory and methodological documents using an analytical matrix and thematic coding with the possibility of assigning one source to several categories. The analysis indicated that pedagogical continuity is formed through the interaction of three dimensions: organizational coordination, alignment of competency expectations and technological continuity. The Ukrainian regulatory framework generally supports alignment between preschool educational areas and primary curriculum domains; however, the procedures for joint planning, the transfer of pedagogically significant information and the assessment of adaptation remain insufficiently specified. Four groups of cross-cutting pedagogical technologies and tools are identified: guided play, activity-based and integrated learning, formative assessment and digital support; partnership pedagogy and inclusive support are identified as organizational mechanisms for their coordinated application. The synthesis indicates that continuity does not consist in the literal repetition of the same methods, but in preserving the child's familiar ways of learning with a gradual increase in task complexity, independence and responsibility. A structural model is proposed that connects organizational prerequisites, content guidelines, pedagogical technologies and expected transition results. The practical significance of the results lies in the possibility of using the model to develop joint transition plans, competency continuity maps, pedagogical observation procedures and individual support for children.


**Keywords:** pedagogical continuity, educational transition, guided play, formative assessment, New Ukrainian School, partnership pedagogy, psychological readiness, logical-mathematical competence.

## 1. INTRODUCTION

The move from preschool to primary education may appear brief in calendar terms, yet it encompasses several interconnected developmental, social, and pedagogical changes. The child enters a new educational environment, where the daily routine, interaction with the teacher, learning activities and assessment of achievements are organized differently. Expectations regarding independence, responsibility and participation in group work also change. When these changes are consistent with previous experience of play, communication and cognition, entering school supports further development. A sharp gap between the two levels of education, on the contrary, can increase emotional tension, reduce engagement in learning and complicate social adaptation.

In modern pedagogy, continuity is no longer limited to the one-sided preparation of a preschooler for the formal requirements of school. It is about the mutual coordination of goals, content, educational environment and approaches to pedagogical interaction. González-Moreira et al. [1] showed that continuity between preschool and primary education depends on teacher coordination, transition management, family involvement, and the ability of educational institutions to take into account the needs of the individual child. Therefore, school readiness cannot be measured solely by the development of reading, writing, or numeracy skills. What is more important is whether primary school continues to build on the child's previously acquired experience, rather than replacing it with a new set of requirements.

The child's own experience of entering the first grade is equally significant. Boylan et al. [2] found that the transition becomes more meaningful when educators draw on children's knowledge, family experiences, cultural background, and habitual ways of knowing. Jahreie [3] links school readiness not only to academic skills, but also to self-regulation, communication, emotional resilience, and the ability to act together with others. This approach helps to avoid the premature academization of preschool education. Formally transferring school methods to work with preschoolers does not guarantee a successful transition, while preserving play, exploration, interaction, and children's initiative creates a developmentally appropriate basis for learning.

In the Ukrainian context, the issue of continuity has gained new significance after the introduction of the New Ukrainian School (NUS) concept. Its pedagogical model is based on competency-based and activity-based learning, content integration, formative assessment, collaborative interaction, and child-centeredness. In the guide edited by Bibik [4], these provisions are considered as a holistic system of organizing primary education, rather than as a set of individual methodological techniques. At the same time, the alignment of regulatory and conceptual principles of preschool education and NUS does not yet ensure real unity of pedagogical practice. At the level of an individual institution, interaction may be limited to occasional meetings, familiarizing children with the school, or exchanging general information, while the coordinated use of play-based, activity-based, integrated, and inquiry-based learning requires systemic cooperation.

The need for such cooperation is enshrined in the recommendations of the Ministry of Education and Science of Ukraine [5], where continuity is associated with the holistic development of the child, the interaction of pedagogical teams and partnership with parents. However, a scientific gap remains: it is not sufficiently explained how exactly pedagogical approaches, technologies and tools used within NUS can be consistently applied before and after the child enters the first grade. There is also a lack of criteria by which one can distinguish real methodological continuity from its formal declaration. The theoretical value of the study lies in clarifying continuity as the coordination of goals, technologies and approaches to interaction, and the practical value lies in the possibility of using the results during joint planning of the work of educators, teachers and parents.

The purpose of the study was to identify organizational, curricular, and pedagogical conditions for ensuring continuity between preschool and primary education based on the integration of pedagogical approaches, technologies and tools of the New Ukrainian School. To achieve this goal, the following tasks were set: to characterize contemporary research approaches to the transition of a child from preschool to primary education; to identify pedagogical technologies of the New Ukrainian School suitable for consistent application at adjacent levels of education; to clarify organizational and methodological barriers to their coordination; to systematize the criteria for real pedagogical continuity; to substantiate practical areas of interaction between educators, primary school teachers and parents. Special attention is focused on play-based, activity-based and integrated learning, formative assessment, digital support of the educational process and partnership pedagogy as components of a child's continuous educational experience.

## 2. LITERATURE REVIEW

The continuity between preschool and primary education in modern research is interpreted not as a one-time adaptation of a child to school, but as an extended multilevel process. It includes the coordination of pedagogical goals, learning content, approaches to interaction, family expectations and the organization of the educational environment. Boyle et al. [6] found that the success of the transition cannot be explained solely by the academic readiness of the child entering the first grade. Equally important are the connections between educational institutions, the nature of pedagogical support and the consideration of the child's previous experience. OECD [7] develops this approach, emphasizing the need to align

curricula, professional practices and mechanisms for information exchange between preschool and primary education.

Methodologically, continuity studies remain quite heterogeneous. González-Moreira et al. [8] found that observation, questionnaires, interviews, comparative analysis and long-term monitoring of children's adaptation are used to study it. However, many studies cover only one aspect of the transition or the perspectives of a single participant group. As a result, the relationships between pedagogical technologies, family support and the child's subsequent participation in schooling often remain poorly explained. In a systematic review, González-Moreira et al. [9] divide transition factors into individual, family, pedagogical, and institutional. This classification organizes the available results, but does not provide a complete answer to the question of how to integrate compatible technologies at the two levels of education.

An important area of scientific discussion concerns psychological and social adaptation. Cadima et al. [10] showed that a child's engagement in learning depends on self-regulation, the quality of the relationship with the teacher, and the classroom climate. Thus, established academic skills alone do not guarantee successful entry into the school environment. If rules are unclear, communication is too formalized, and support is limited, a child may lose engagement even with a sufficient level of cognitive readiness. This makes emotional safety and predictability of the educational environment part of pedagogical continuity.

Modern researchers are increasingly analyzing the transition from the perspective of the individual child. Degli Esposti and Cigala [11] found that children associate the beginning of school not only with new tasks, but also with friendship, rules, the teacher's attitude, and the opportunity to get help. Einarsdottir et al. [12] complement this conclusion with the concept of belonging, which is formed through participation in joint activities, recognition of the child and the opportunity to influence the events of educational life. Nilsen et al. [13] draw attention to the duality of children's experiences: school can be exciting, but at the same time it can create uncertainty and tension due to new social norms. These findings suggest that the quality of the transition is determined not only by what the child has learned, but also by whether the child retains a sense of competence and acceptance.

A separate block of research is devoted to the interaction of teachers and families. Hugo et al. [14] described the practice of collaborative transition planning involving the preschool, school, parents and local community. Their action-research findings illustrate how collaborative planning can make transition support more responsive to children's needs. This evidence does not establish that every isolated introductory meeting is ineffective, but supports sustained professional communication rather than reliance on a single event. Jun et al. [15] found that before the start of school, parents often emphasize academic readiness, but after entering school they value independence, emotional stability, and social adaptation more highly. Morawska et al. [16] also showed that the transition changes the daily life of the whole family, including daily routines, communication with the school and ways of supporting learning. Therefore, the pedagogy of partnership should go beyond informing parents and include their active participation in the preparation and support of the transition.

Technological continuity is most clearly traced in research on play-based and formative learning. Skene et al. [17] confirmed that guided play has a positive impact on development when the teacher sets the learning goal but leaves the child room for choice and initiative. Pyle et al. [18] showed that pedagogically supported play can provide literacy development without directly copying a traditional lesson. At the same time, the effect depends on the balance between the child's intention and the pedagogical goal. Excessive control can weaken children's motivation to play, and a complete absence of support does not always provide the expected result.

Formative assessment complements this model because it allows for monitoring a child's progress without a sudden transition to strict control. Guarrella et al. [19] found that assessment in a play and inquiry environment requires the teacher to be able to interpret children's actions and modify further support according to the information received. Assessment here is not separated from the learning activity, but becomes an integral part of it. This approach corresponds to the child-centered logic of the New Ukrainian School and can be used as a connecting technology between preschool and primary education.

Digital tools also have the potential to support continuity, although their use requires pedagogical consideration. Su and Yang [20] view digital competence as a combination of technical skills, safe use of resources, pedagogical selection of content and organization of active interaction of children. Simply transferring traditional exercises to the screen does not change the educational model. Instead, digital modeling, collaborative creation, inquiry tasks, and purposeful interaction can support an activity-based approach at both levels of education.

Thus, the international literature provides substantial evidence about the psychological, family, social and organizational factors of the transition. At the same time, play-based learning, formative assessment, digital tools and partnership-based interaction are mostly analyzed separately. The scientific gap lies in the lack of a holistic explanation of how these technologies can be consistently integrated in preschool and primary education in accordance with the principles of the New Ukrainian School. That is why further research should identify cross-cutting pedagogical technologies, the conditions for their adaptation and the mechanisms of coordinated interaction of educators, teachers and families.

## 3. MATERIALS AND METHODS

The study was conducted as a structured thematic review of a previously formed and bibliographically verified corpus of sources, supplemented by a comparative analysis of Ukrainian regulatory and methodological documents. Such a design corresponded to the set goal, since the work was aimed not at measuring the effect of a separate pedagogical intervention, but at identifying the organizational, curricular, and pedagogical conditions of continuity between preschool and primary education. The methodological orientation drew on approaches in which the transition to school is interpreted as a multi-component process, encompassing the child, family, teachers and educational institutions [6, 7]. The features of the research designs used to study continuity were further refined based on González-Moreira et al. [8].

The source base consisted of 39 sources published in 2013–2026: 30 scientific and analytical works and 9 Ukrainian regulatory and methodological documents. The research block included peer-reviewed empirical and document-based studies, systematic, integrative, and scoping reviews, a meta-analysis, an OECD analytical report, and a conceptual publication. The normative block covered the laws of Ukraine, state standards of preschool and primary education, conceptual documents of the New Ukrainian School, materials of the Ministry of Education and Science of Ukraine and a methodological manual for teachers. The unit of analysis was a separate scientific publication, analytical report or regulatory and methodological document.

The corpus included sources directly related to the transition of a child to school, the continuity of educational levels, readiness for learning, or pedagogical technologies suitable for preschool and primary education. Additional criteria were the availability of complete bibliographic data, a clearly described methodology, publication in a peer-reviewed journal, publication by an authoritative international organization, or an official or methodologically recognized origin of the document. The ability to identify practical conditions, barriers, or results of applying the appropriate approach was also taken into account. Duplicates, materials without a defined methodological basis, works devoted only to secondary or higher education, as well as texts in which the transition to school was mentioned in passing were excluded. DOIs of journal articles and the accessibility of official document links were checked before including sources in the analytical corpus.

The analysis was carried out in three consecutive stages. First, the year, country or region, publication type, research design, participant group, educational level and subject of analysis were recorded for each source. Then, thematic coding was carried out according to the following categories: inter-institutional interaction, coordination of educational content, psychological and social adaptation, family participation, play-based and activity-based learning, content integration, formative assessment, digital support, inclusion and professional collaboration of teachers. One source could be assigned to several categories if it considered different dimensions of continuity.

In the third stage, the conclusions of international research were compared with the provisions of Ukrainian educational documents. Play-based and pedagogically supported learning were analyzed taking into account Skene et al. [17], Pyle et al. [18] and Guarrella et al. [19], formative assessment – Schildkamp et al. [21] and Yan et al. [22], and the digital component – Su and Yang [20]. The basic component of preschool education in 2021 was considered as the current regulatory framework for the analyzed period. The State Standard of Preschool Education, approved in 2025, was interpreted as a prospective regulatory guideline, coming into force on September 1, 2027.

To systematize the material, an analytical matrix was formed, which included the following parameters: continuity dimension, pedagogical technology or organizational mechanism, participants in the interaction, expected educational outcome, identified barrier and practical way to overcome it. Absolute values and proportions were used to characterize the chronological and typological structure of the corpus. Thematic categories were summarized qualitatively through a comparative synthesis of recurring provisions, barriers and practical mechanisms. During the interpretation, it was taken into account that review publications could contain individual primary studies presented in the corpus independently; therefore, the number of sources was not interpreted as the number of independent confirmations of the effectiveness of a particular technology.

Inferential statistics and meta-analytic pooling of effects were not used due to the heterogeneity of research designs, samples, age groups, and methods of presenting results. Quantitative indicators characterized only the composition of the source corpus, and not the strength of the pedagogical effect or the prevalence of a particular practice in educational institutions. The final synthesis was carried out along three interrelated dimensions of continuity: organizational, content, and technological. The study analyzed published materials, recruited no human participants, and processed no participant-level personal data. No participant consent procedure was therefore part of this review; institutional requirements for research governance should be distinguished from the procedures needed for empirical research involving children.

The review was designed as a purposive thematic synthesis, not as an exhaustive systematic search. The supplied study documentation does not provide reproducible database searches, a dated screening log, a source-level quality appraisal, or an independently verified coding-agreement statistic. These procedures are not claimed here. The reported design categories summarize the authors' classification of the corpus; they should not be read as a hierarchy of evidence quality.

Conclusions were interpreted according to the relevance and scope of the underlying studies, with particular caution when drawing implications for Ukrainian institutions from research conducted in other national systems.

The comparison distinguished three kinds of statement: a principle explicitly stated in an educational document, a practice described in a research publication, and a recommendation developed through the present synthesis. An explicit policy recommendation was not treated as evidence of implementation, while a local implementation gap was not inferred solely from a document's brevity. Similarly, a suggested cross-level activity was treated as an illustrative application of the model rather than as a tested intervention. This distinction preserves the theoretical purpose of the study while making the evidential status of its practical proposals clearer.

## 4. RESULTS

### 4.1. STRUCTURE OF THE EVIDENCE BASE AND KEY DIMENSIONS OF CONTINUITY

The final analytical corpus included 39 sources. Of these, 30 were scientific and analytical works, and 9 were Ukrainian regulatory and methodological documents. The unit of analysis was a separate scientific publication, analytical report, or official document. This composition of the corpus made it possible to compare the results of international studies of a child's transition to school with the principles and regulatory guidance of preschool and primary education in Ukraine.

The scientific and analytical block mainly consisted of recent publications. 17 works, or 56.7% of the 30 analyzed scientific and analytical sources, were published during the period 2022–2026. Seven publications, which accounted for 23.3%, were published in 2018–2021. Another 6 sources, or 20.0%, were published in 2013–2017. Thus, more than half of the scientific base reflected the current stage of studying the transition to school, pedagogically supported play, digital competence, formative assessment, and partnership-based interaction.

By research design, the corpus combined review and empirical materials. Fifteen sources, or 50.0%, were systematic, integrative, thematic, and scoping reviews, including systematic reviews and meta-analyses. Thirteen publications, or 43.3%, were empirical and document-based studies. The corpus also included one OECD analytical report and one conceptual paper, each accounting for 3.3% of the research block.

The review sources provided a summary of transition factors, children's and parents' experiences, approaches to determining school readiness, play pedagogy, digital support and assessment. Empirical and documentary-analytic works provided an opportunity to specify these provisions through the analysis of children's engagement, sense of belonging, interaction with the teacher, practices of collaboration between institutions and the content of educational documents. However, these two types of sources were not treated as independent sets of evidence of equal strength. Some of the reviews may have covered primary studies presented separately in the corpus, so the number of publications was not interpreted as the number of independent confirmations of the effectiveness of a particular approach.

The Ukrainian block consisted of six regulatory and three methodological sources. The first group included the laws of Ukraine, state standards, the concept of the reform of general secondary education and other official acts. The methodological segment included a manual for teachers of the New Ukrainian School, recommendations for ensuring continuity and an algorithm of actions for teachers and parents.

The quantitative characteristics of the corpus are given in Table 1. The shares by publication period and design were calculated from 30 scientific and analytical works, and the shares of Ukrainian documents were calculated from 9 regulatory and methodological sources. These indicators characterize the structure of the source base, but not the strength of the pedagogical effect or the prevalence of relevant practices in educational institutions.

**Table 1.** *Structure of the analyzed corpus of sources*

| Parameter | Category | Number | Share, % |
|---|---|---|---|
| Period of publication of scientific papers | 2013–2017 | 6 | 20.0 |
| | 2018–2021 | 7 | 23.3 |
| | 2022–2026 | 17 | 56.7 |
| Design of scientific papers | Reviews, syntheses, and meta-analyses | 15 | 50.0 |
| | Empirical and documentary-analytical research | 13 | 43.3 |
| | Analytical report | 1 | 3.3 |
| | Conceptual work | 1 | 3.3 |
| Ukrainian documents | Regulatory and legal | 6 | 66.7 |
| | Methodological and recommendatory | 3 | 33.3 |

Note: the slight discrepancy in the final percentage by design of scientific papers is due to rounding to one decimal place.
Source: developed by the authors based on the results of the analysis of the existing corpus of sources.

The distribution in Table 1 describes the selected literature rather than the prevalence of continuity practices in educational institutions. The predominance of reviews broadens the conceptual coverage, but overlapping primary studies may contribute to several publications. Source counts therefore cannot be used as a vote for the effectiveness of any one

pedagogical approach.

Qualitative thematic synthesis showed that continuity is revealed through three interrelated dimensions: organizational, content and technological. The organizational dimension covered the interaction of educational institutions, professional communication of teachers, partnership with the family and individualization of support. The content dimension concerned the coordination of competencies, expected results and ways of learning and participating. The technological dimension reflected the continuation of the child's familiar ways of knowing with a gradual increase in the complexity of learning tasks.

Continuity in the analyzed works was not identified with early mastery of the school curriculum. A recurring position was the understanding of the transition as a multi-component process related to self-regulation, social participation, relationships with the teacher, emotional security and family support [6, 7, 10]. A child's readiness is thus only one element of the broader readiness of the educational environment to support their development.

### 4.2. ORGANIZATIONAL AND SUBSTANTIVE CONDITIONS FOR ENSURING CONTINUITY

A comparison of scientific works and Ukrainian documents revealed a general conceptual compatibility of approaches to the transition between educational levels. In both blocks, continuity was associated with child-centeredness, collaborative interaction, development of competencies, and avoidance of abrupt changes in the nature of educational activities. At the same time, the mechanisms for implementing these principles were unevenly detailed.

The organizational dimension included four components: advance transition planning, professional communication between teachers, partnership with the family, and individualization of support. Analysis of materials on the interaction of institutions showed that a one-time introduction of a child to school does not in itself form a system of continuity. Full support involves interrelated actions before entry, in the first months of study, and after the initial adaptation period [14, 23].

Professional exchange between the educator and the teacher should not concern the general characteristics of the child, but pedagogically significant information. This may include established ways of activity, cognitive interests, communication features, the need for help, experience of interaction in a group and the conditions under which the child demonstrates independence. The 2023 ministry algorithm explicitly recommends regular communication about children's progress and strengths [24]. The review did not identify, within this selected set of documents, a single detailed template covering every element of information transfer and joint review. This limited observation should not be interpreted as evidence that information-sharing guidance is absent throughout Ukrainian education law or practice.

Partnership with the family also goes beyond communicating the rules and routines of the future school. A synthesis of parental perspectives has shown that perceptions of readiness can change after the actual start of school. Along with academic expectations, issues of independence, emotional adjustment, behavioral regulation, and interaction with school become more prominent [15, 16].

With this approach, parents not only receive information, but also report changes in the child's behavior, difficulties at home, and reactions to new demands. Teachers, for their part, explain the logic of adaptation measures and adjust support. The analyzed Ukrainian methodological materials provide for consultations, meetings, and feedback. However, the specific frequency, implementation and outcome indicators, and the procedure for joint decision-making mostly remain at the level of an individual institution.

The inclusive component of continuity was associated with the individualization of the transition and the coordination of actions of the family, teachers and specialists. For a child with special educational needs, a change of institution may simultaneously mean a change of teachers, assistant, support arrangements, spatial organization and habitual ways of communication. Therefore, the transfer of only medical or formal information does not ensure continuity of support.

Information about effective communication methods, sensory needs, signs of overload, adaptation tools used, and conditions for participating in joint activities are of practical importance. Rheinberger et al. [25] link inclusive transition with systemic coordination of participants. The selected Ukrainian documents include provisions concerning individualized support and interaction among teachers, families, and specialists. The 2023 algorithm expressly recommends individualized transition plans for children with additional needs [24]. The issue identified here concerns the level of operational detail: a consistently specified plan structure, review schedule, and common evaluation criteria were not demonstrated across the selected documents. The absence of a uniform template in this corpus is distinct from the absence of a recommendation to plan individually.

Curricular alignment was more clearly articulated in the regulatory documents than detailed procedures for implementing it. The basic component of preschool education in 2021 orients the educational process towards the development of competencies that should continue to be formed at the next level. The state standard of primary education defines competency outcomes by educational field and provides for the activity-based nature of learning.

The documentary comparison identified broad conceptual correspondence between preschool educational areas and the main primary curriculum domains [26, 27]. Speech, mathematical, natural, technological, social, civic, artistic and

motor competences have a content continuation in the first cycle of primary school. At the level of general guidelines, no significant gap in stated requirements between the two levels was identified.

Less detailed remains the intermediate level, where general competences are transformed into a sequence of pedagogical actions. The selected documents provide broad principles rather than an exhaustive account of how narrative play, observation, construction, or joint discussion should continue in the form of inquiry activities, an integrated task or work with a model in the first grade. It is at this level that there is a risk of a gap between the declared competence sequence and everyday ways of organizing learning.

The State Standard of Preschool Education, approved in 2025, strengthens the competency logic and the focus on the connection with primary education. Since it comes into force on September 1, 2027, the document was not treated as a characteristic of the already implemented practice within the scope of this study. It was used as a prospective regulatory reference point for the further convergence of the two educational levels.

A summary of the organizational and substantive conditions is given in Table 2. It distinguishes between the identified compliance, consolidation in Ukrainian documents, and procedural gaps.

**Table 2.** *Organizational and content conditions for continuity between preschool and primary education*

| Dimension | Component | Alignment identified | Provisions in Ukrainian documents | Implementation issue | Key sources |
|---|---|---|---|---|---|
| Organizational | Interinstitutional interaction | Advance planning, professional communication, coordinated support | Teacher meetings, information sharing, and educational events | The selected documents do not establish one detailed common template for planning, information transfer, and joint review. | Hugo et al. [14]; Rantavuori [23]; Ministry of Education and Science of Ukraine [5] |
| Organizational | Partnership with family | Two-way communication and consideration of parental experience | Consultations, meetings, information and feedback | Insufficient detailing of joint decision-making and implementation and outcome indicators | Jun et al. [15]; Morawska et al. [16] |
| Organizational | Inclusive support | Individualization of support and interprofessional coordination | Interaction between teachers, family and specialists is provided | Individual plans are recommended; consistent plan structure, review procedures, and evaluation criteria require local specification | Rheinberger et al. [25] |
| Content-based | Continuity of competencies | Progressively more complex activities and learning outcomes | Correspondence of preschool areas to primary education areas | Insufficient detailing of intermediate results between the final preschool year and the first grade | Cabinet of Ministers of Ukraine [27]; Ministry of Education and Science of Ukraine [26] |
| Content-based | Social-emotional development | Self-regulation, belonging, emotional security, and initiative | Supporting adaptation, interaction and positive attitudes towards school | No common system of indicators of socio-emotional transition has been identified | Cadima et al. [10]; Einarsdottir et al. [12]; Jahreie [3] |

Source: developed by the authors based on the results of a comparative analysis of research, regulatory, and methodological sources.

The main result of this stage was the identification of an unevenness between the content and procedural readiness of the system. The competency guidelines of the two levels are broadly aligned, and the principles of child-centeredness and partnership are enshrined in the documents. The procedures for joint planning, the transfer of pedagogical information, and the assessment of the transition process remain less defined.

### 4.3. CROSS-CUTTING PEDAGOGICAL TECHNOLOGIES AND ORGANIZATIONAL MECHANISMS FOR THEIR INTEGRATION

Thematic coding identified four groups of pedagogical technologies and tools suitable for consistent use in the final preschool year and the first cycle of primary school. These include guided play, activity-based and integrated learning, formative assessment, and digital support. Partnership pedagogy and inclusive support were considered not as separate technologies, but as organizational mechanisms for their coordinated use.

Guided play has been identified as one of the key technological bridges between the two levels. In preschool education, it maintains storylines, choice of materials, active participation, and flexibility in how an activity is pursued. In primary school, this logic can be continued through problem-solving, role-playing, educational quests and exercises with multiple possible solutions.

Skene et al. [17] found some positive effects of guided play compared to other activity formats. However, the heterogeneity and limited number of included studies do not allow generalization of these results to all educational outcomes. Pyle et al. [18] have shown that pedagogical facilitation of play can support literacy development with varying

ratios of child autonomy and teacher involvement. The criterion for continuity in this case is not only the presence of play in the first grade, but the preservation of choice, initiative, and active construction of meaning.

The main risk is the formal use of the outward appearance of play. The task may have a playful name, bright materials, or a scoring system, but remain a teacher-directed whole-class exercise with one defined algorithm. The external form then changes, but the child's way of participating does not continue the preschool logic of cognition.

Activity-based and integrated learning formed the second technological group. In preschool education, they are implemented through observation, experimentation, construction, movement, discussion and solving practical situations. In primary school, these practices can continue through integrated tasks, mini-projects, inquiry activities, work with models, and application of an established approach in a new context.

Integration was defined as meaningful when different educational areas were united around a common problem or activity. The mechanical placement of several subject elements in one task was not treated as meaningfully integrated learning. The overarching criterion was the use of the child's established way of learning to perform a more complex task.

The third technological group was formative assessment. In preschool education, its elements include systematic observation, descriptive feedback, documentation of achievements, and discussion of the outcome of the activity. In primary school, these practices can be developed through success criteria, self-assessment, peer assessment, reflective questions, and corrective feedback.

Guarrella et al. [19] showed the features of assessment in playful learning conditions, while Schildkamp et al. [21] and Yan et al. [22] systematized the prerequisites for using formative assessment in pedagogical practice. A synthesis of these works showed that the information collected should influence the next task, the pace of support, or the nature of the explanation. If the result is only recorded, but not used to adjust learning, the assessment loses its formative function.

Digital tools took a supporting role in the integrated model. They were seen as appropriate when they expanded the opportunities for inquiry, modeling, product creation, or collaborative interaction. Performing an exercise on a screen that could have been presented on paper without changing the method of activity was not considered an independent sign of technological continuity.

According to Su and Yang [20] and Undheim [28], digital competence of the teacher is not limited to technical mastery of the device. It encompasses content selection, assessment of pedagogical feasibility, safe organization of activities and combination of screen interaction with speech, movement and work with physical objects. Digital support was therefore included in the model as a tool, not as an independent goal of the transition.

Partnership pedagogy and inclusive support formed the organizational basis for the use of these technologies. Their content is a coordinated sequence of communication, joint planning, monitoring, and adjustment of support. The focus is not on the formal exchange of documents, but on coordinated actions around the needs of a particular child.

The results of the synthesis are systematized in Table 3. For each element, the matrix specifies possible implementation at both educational levels, a continuity criterion, and the principal risk of superficial implementation.

**Table 3.** *Matrix of application across educational levels of pedagogical technologies and organizational mechanisms*

| Technology or mechanism | Implementation in preschool education | Continuation in primary school | Continuity criterion | The main implementation risk | Key sources |
|---|---|---|---|---|---|
| Guided play | Story, role-playing, constructive and inquiry-based play with teacher support | Situation modeling, role-playing and search tasks, educational quests | Maintaining choice and initiative as goals become more complex | Turning play into a disguised whole-class drill | Skene et al. [17]; Pyle et al. [18]; Weisberg et al. [29] |
| Activity-based and integrated learning | Learning through action, observation, experimentation, construction, and thematic situations | Integrated tasks, mini-projects, modeling and inquiry activities | Applying an established approach to activity to a new context | Superficial combination of content without a common problem | Bibik [4]; González-Moreira et al. [1] |
| Formative assessment | Observation, descriptive feedback, portfolio, discussion of results | Success criteria, self-assessment, reflection and corrective feedback | Using information to support further progress | Reducing the assessment to recording errors or correct responses | Guarrella et al. [19]; Schildkamp et al. [21]; Yan et al. [22] |
| Digital support | Co-creation of digital products, modeling and inquiry | Content creation, information management and digital learning tasks | Technology augments activity and does not replace it with on-screen exercise | Unequal access, security risks, and insufficient teacher training | Su and Yang [20]; Undheim [28]; Hatzigianni et al. [30] |
| Partnership and inclusive support | Information exchange with parents, individualization of support, involvement of specialists | Joint observation of adaptation and interprofessional interaction | Coordinated actions according to the needs of the individual child | Formal nature of cooperation and unclear division of responsibilities | Jun et al. [15]; Morawska et al. [16]; Rheinberger et al. [25] |

Source: developed by the authors based on the results of thematic synthesis.

The relationships summarized in Table 3 informed the integrated continuity model shown in Figure 1. Its structure involves a sequential transition from an organizational framework and content coherence to cross-cutting technologies and

intended outcomes for the child. The model is cyclical in nature, since the results of observing adaptation should influence further pedagogical decisions.

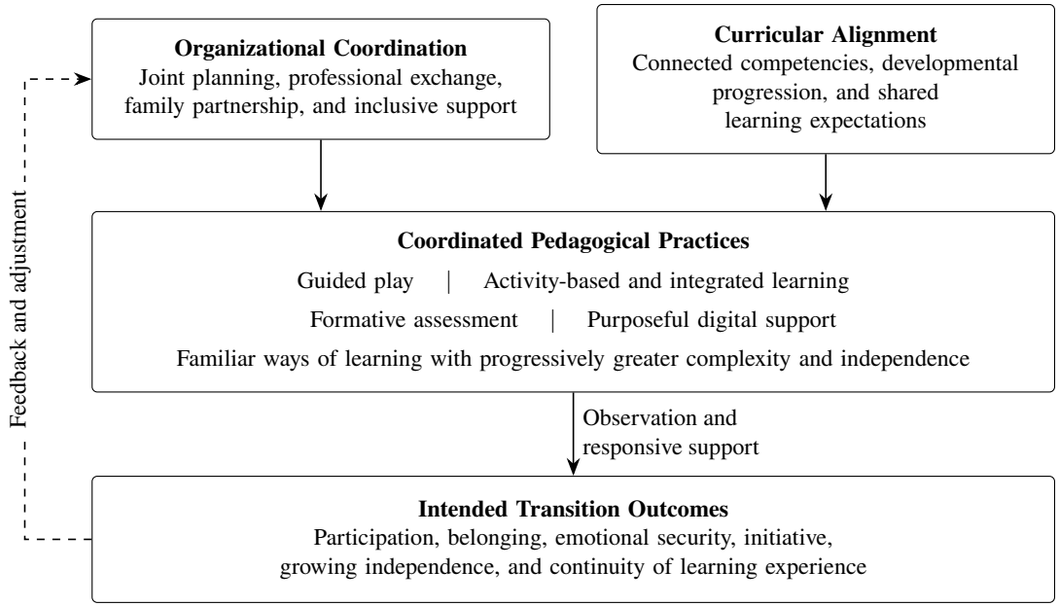



**Figure 1.** *Conceptual model of continuity between preschool and primary education through coordinated pedagogical practices of the New Ukrainian School.*

*Note.* The outcomes are proposed analytical targets, not measured effects. Arrows show the logic of the conceptual model rather than statistically estimated causal relationships.
*Source.* Developed by the authors through thematic synthesis.

The conceptual structure in Figure 1 indicates that a single pedagogical technology does not compensate for the lack of organizational interaction or curricular alignment. Guided play, integrated learning, formative assessment, and digital support can form a continuous trajectory only if there is a shared understanding of the purpose of the transition and coordination of teachers' practices.

The overarching pedagogical criterion of continuity is the preservation of a recognizable way of knowing for the child with a gradual increase in complexity, independence and responsibility. This criterion should be applied together with the organizational coordination of teachers and the alignment of expected learning outcomes. It is this combination that distinguishes the integration of technologies of the New Ukrainian School from the mechanical transfer of formal school practices into preschool education.

## 5. DISCUSSION

The synthesis indicates that the continuity between preschool and primary education is not reduced to the formal preparation of the child for school tasks. It is formed through the interaction of organizational, content and technological dimensions. The isolated use of individual methods does not eliminate the gap between the final preschool year and the first grade. Instead, the integration of pedagogical technologies of the New Ukrainian School can support the continuity of educational experience provided that the actions of teachers, competency guidelines and ways of supporting the child are coordinated.

One of the key results was the identification of an unevenness between the regulatory and procedural readiness of the system. The competency-based, activity-based and child-centered nature of education is enshrined in the concept of the New Ukrainian School, the State Standard of Primary Education and legislative provisions on the integrity of the educational process [27, 31, 32]. The current Basic Component of Preschool Education also provides for the continuation of previously developed competencies in primary school [26]. Therefore, at the level of general goals, the selected documents display broad compatibility of general principles.

At the same time, alignment of regulatory principles by itself does not ensure continuity in everyday practice. The analyzed documents do not sufficiently specify the procedures for joint planning, the transfer of pedagogically significant information, and the assessment of the adaptation process. The algorithm of the Ministry of Education and Science of Ukraine [24] outlines the main areas of work, but leaves significant space for institutions to independently determine the forms and periodicity of interaction. As a result, continuity can take on different meanings: from systematic support to individual introductory events. This situation is consistent with the conclusions of Rantavuori [23], who links the quality of the transition to overcoming professional boundaries and joint problem-solving by teachers of different educational levels.

Content continuity should be implemented through the progressive development of ways of participating and learning, and not through the early transfer of formalized school content into preschool education. Fane et al. [33] consider transition in relation to the health, well-being and ability of the child to adapt to the new environment. Margetts and Phatudi [34] showed that the conditions for entering school depend on previous educational experience, family environment and school resources. Their findings support attention to contextual differences. In the present synthesis, this suggests that identical entry expectations cannot be assumed to provide equivalent opportunities for children with different prior experiences and resources.

One of the most significant technological bridges has been guided play. Its significance lies in the combination of children's initiative with a pedagogically defined goal and progressively more complex activities. Weisberg et al. [29] characterize guided play as the interaction of children's freedom of choice and targeted adult support. At the same time, Pyle et al. [35] found significant differences between models of play-based learning depending on the degree of pedagogical intervention. Therefore, the presence of a play activity alone is not an indicator of continuity. Pyle et al. [36] further showed that integrating literacy into a play environment requires a balance between learning goals and children's intention: excessive control turns play into a routine exercise, while a lack of support can limit learning outcomes.

Digital tools in the proposed model perform a supporting function. Hatzigianni et al. [30] link their contribution to the quality of preschool education with pedagogically sound integration and support for interaction. Undheim [28] also emphasizes the advantages of joint activities of children and teachers compared to passive consumption of digital content. Therefore, digitalization is not an independent indicator of innovation. Its value is determined by whether it expands the opportunities for inquiry, communication, modeling and joint product creation.

The organizational prerequisite for the use of technology is a partnership with the family. Mercan et al. [37] examine parental awareness specifically in STEM during the preschool-to-primary transition. Their findings provide domain-specific context for family engagement, rather than general evidence that every form of parental awareness improves transition outcomes. However, informing parents does not equal partnership. Family experience helps to identify the child's reactions to changes in daily routines, workload and social demands, so the interaction should be two-way and regular.

The inclusive component demonstrated the limitations of the single universal transition pathway. Rheinberger et al. [25] emphasize individual planning and coordination between family, teachers, and professionals. Although the ministry algorithm recommends individualized transition plans, the selected materials leave substantial operational detail to institutions. A locally agreed plan structure could support the transfer of information about effective communication, adaptation, and assistance [24]. The Law of Ukraine on Preschool Education strengthens the focus on accessibility and individual needs, but procedural mechanisms still need to be specified [38].

The State Standard of Preschool Education 2025 establishes further convergence of competency benchmarks of preschool and primary levels [39]. Its role in this study is prospective, since the document comes into force on September 1, 2027. Therefore, the practical application of the proposed model in the current period should be based on the Basic Component of Preschool Education 2021 and the State Standard of Primary Education 2018, while the provisions of the new standard should be taken into account during long-term planning.

The practical use of the results involves the development of joint transition plans, competency continuity maps and pedagogical observation procedures. It is advisable for teachers to agree not on the same exercises, but on ways of learning and participating that gradually become more complicated. For families, regular two-way feedback is needed, and for children with special educational needs, individualized support with the identification of responsible persons, forms of support and adaptation criteria.

Interpretation of the results should take into account the limitations of the study. The conclusions are based on the analysis of published materials, and not on direct observation of the practice of Ukrainian educational institutions. The sources differed in design, national context, sample, and outcome reporting, which did not allow for a meta-analytic combination of effects. In addition, the formal endorsement of a certain approach does not confirm the level of its actual implementation. The proposed model therefore requires further empirical testing with the participation of educators, teachers, parents, and children.

In general, continuity arises not through the uniformity of preschool and primary education, but through a coordinated change in the complexity of activities while preserving the child's familiar ways of learning. This is the main practical implication of integrating the pedagogical approaches associated with the New Ukrainian School.

## 6. CONCLUSION

The review indicates that the continuity between preschool and primary education is ensured not by the identity of methods, but by preserving the child's recognizable ways of learning with a gradual increase in curricular complexity, independence and responsibility. The goal was achieved by identifying three interrelated conditions for continuity: organizational coordination, alignment of competency expectations and technological continuity of educational experience.

The conceptual contribution lies in a model in which guided play, activity-based and integrated learning, formative assessment and digital support are defined as cross-cutting pedagogical technologies and tools, while partnership pedagogy and inclusive support are considered as organizational mechanisms for their coordinated application. The analysis indicated that the Ukrainian regulatory framework generally creates substantive prerequisites for continuity; however, the procedures for joint planning, transfer of pedagogically significant information and assessment of the child's adaptation remain insufficiently operationalized. The practical value of the results lies in the possibility of using the proposed model to develop joint transition plans, competency continuity maps, pedagogical observation procedures, and individualized support for children with special educational needs. The results should be interpreted taking into account the fact that the study was based on the analysis of published research, regulatory documents, and methodological guidance, and not on direct observation of practices in educational institutions. Further research should include empirical testing of the model in different types of communities and institutions, comparing the positions of educators, teachers, parents, and children, as well as determining indicators of actual, not only formally declared, continuity. In practical terms, the main guideline should not be the accelerated adaptation of a preschooler to the formal requirements of the school, but the readiness of the school itself to continue the child's development without losing play, initiative, trust, and a sense of competence.

**Author Contributions**

Iryna Mozul: Investigation, formal analysis, writing – original draft, writing – review and editing, visualization, and project administration. Svitlana Dubiaha: Conceptualization, formal analysis, writing – original draft, and writing – review and editing. Valeriia Vlasova: Investigation, validation, writing – original draft, and writing – review and editing. Nadiia Frolenkova: Validation, methodology, data curation, formal analysis, visualization, and writing – review and editing. Leonida Pisotska: Investigation, supervision, writing – review and editing. All authors contributed to the development of the study, critically reviewed the manuscript, approved the final version, and agreed to be accountable for all aspects of the work.

**Conflict of Interest**

The authors declare no conflicts of interest.

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**Data availability**

Data are available from the corresponding author upon reasonable request.

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