

HEILY RASKA

Teachers' opinions on aspects related  
to the choice of learning materials





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## LIST OF ORIGINAL PUBLICATIONS

### I article

Taimalu, M., Uibu, K., & Leola, H. (2020). Eesti keele ja matemaatika õppevara valiku põhimõtted ja eesmärgid lasteaia- ja klassiõpetajate hinnangul. [Principles and goals determining the choice of Estonian language and mathematics learning materials as reported by pre- and primary school teachers.] *Eesti Haridusteaduste Ajakiri. Estonian Journal of Education*, 8(2), 164–191. <https://doi.org/10.12697/eha.2020.8.2.07>

### II article

Leola, H., Uibu, K., & Ugaste, A. (2024). Varase eesti keele kui teise keele õppemängude kasutusvõimalused ja valikud õpetajate hinnangul. [Possibilities and selection of games for early Estonian as a second language learning according to teachers' assessment.] *Eesti Rakenduslingvistika Ühingu aastaraamat = Estonian papers in applied linguistics*. 20, 133–148. <https://doi.org/10.5128/ERYa20.08>.

### III article

Raska, H., Taimalu, M., & Uibu, K. (2025). Factors influencing Estonian teachers' opportunities and decisions regarding the selection of learning materials. *Teaching Education*. 1–19. <https://doi.org/10.1080/10476210.2025.2463584>

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#### I article:

Participating in researching theoretical bases, participating in the instrument development process, formulating the research questions, analysing data, and writing the article in cooperation with co-authors.

#### II article:

Participating in composing the theoretical framework, formulating the research questions, analysing data, and writing the paper as the primary author in cooperation with co-authors.

#### III article:

Participating in composing the theoretical framework, designing the study, formulating the research questions, carrying out the data collection and analysis, and writing the paper as the primary author in cooperation with co-authors.

# 1. INTRODUCTION

## 1.1. Focus of the research

Sociocultural theory views learning and development as inherently social and cultural processes. The theory emphasises the importance of culture, the social environment, and interactions in learning (Vygotsky, 1978). This means that learning is not an isolated cognitive activity, but rather one that is embedded in relationships and shared practices. Learning occurs in a social context, and knowledge and skills are acquired through social interaction, whether in collaboration with adults or peers. Higher psychological functions emerge first through social interaction and are later internalised by the individual (John-Steiner & Mahn, 1996). Such internalisation is not mere repetition, but a process shaped by the learner's participation in culturally meaningful activities (von Schulz, 2024). Central to this view is the concept of mediation, which emphasises that human actions and cognition are always shaped and supported by cultural tools (Wertsch, 1994).

Cultural tools play a key role in the connection between culture, social interaction, and learning. These tools include both material resources (e.g., textbooks or digital platforms) and semiotic means, such as symbols or visual diagrams (Vygotsky, 1978). Such tools are not neutral but convey meanings and values, facilitating learners' understanding and engagement within cultural and social contexts (Hennig & Kirova, 2012). They help people overcome their inherent physical and cognitive limitations by enhancing thinking through social interaction and guided learning (Vygotsky, 1978; Wertsch, 1994). Hennig and Kirova (2012) emphasise that cultural tools function not merely as physical objects or toys but as essential mediators that enable children to connect their home culture with the knowledge and experiences encountered in educational settings. The learner does not acquire knowledge in isolation or create meaning independently; they do so collaboratively by adopting, using, and sharing cultural tools as learning materials. In this process, the teacher plays a crucial role by supporting learners in applying learning materials, thereby facilitating engagement with and understanding of curriculum content.

Teachers should have the opportunity to choose learning materials, which can often prove to be rather complex. Their decisions about choosing learning materials are influenced by their professionalism, including teaching experience and knowledge about teaching (Karabon, 2021). Teachers state that they lack sufficient knowledge about the quality of learning materials and their importance in teaching (Christensen *et al.*, 2023; Iversen, 2014). On the one hand, teachers have to consider their pupils' needs when choosing learning materials (Griffith *et al.*, 2013; Noni, 2016), and on the other, they sometimes make decisions based more on parental expectations and colleagues' suggestions, even though these are not the best choices to achieve learning goals (Karabon, 2021). Therefore, it is essential to investigate the factors that influence teachers' choice of learning materials, enabling them to make thoughtful decisions that meet the children's needs.

A broad definition of learning materials covers tools that are used in an educational context (Hansen & Gissel, 2017). Materials can be viewed from the perspective of the environment, encompassing tools used for educational purposes in both physical and virtual environments (Tomlinson & Masuhara, 2017). Another way to categorise materials by form is into authentic and created learning materials, where authentic materials are not specially prepared for instructional purposes but are used by teachers, and created materials refer to those specially written for instruction (Richard, 2001). Hansen and Gissel (2017) distinguish three basic types of learning materials: didactical, semantic, and functional. *Didactical learning materials* are defined as learning resources specifically designed for teaching. *Semantic learning materials* are carriers of content introduced into the teaching, but without an integrated pedagogical intent. *Functional learning materials* are tools used to facilitate teaching and learning, and their nature is unrelated to either content delivery or pedagogy. The doctoral thesis focuses on learning materials, which are designed for educational purposes and specially designed for teaching.

Learning materials in pre- and primary school have similarities and differences. At both levels of education, various games are used in teaching. Learning through play is considered most important in preschool (Fisher, 2021; Riley & Jones, 2010). However, educational games are increasingly used in primary schools (Mitton & Murray-Orr, 2022; Parker *et al.*, 2022). Similarly, educational literature is used for teaching in both pre- and primary school, for example: ABC books, textbooks, workbooks, and worksheets. However, there are key differences in the academic instruction, which normally begins in primary school, while preschool emphasises play-based learning. Nonetheless, there has been a problematic emphasis on academic instruction and materials that has emerged in preschool education (pupils aged 6–7), both internationally (e.g., Markowitz & Ansari, 2020; Murphy, 2022; Patton & Winter, 2022) and in Estonia (Neudorf *et al.*, 2017). This has raised concerns about the schoolification of preschool education, highlighting the importance of maintaining play-based methods while gradually introducing academic content (Ackesjö & Persson, 2019).

The similar use of learning materials could play a crucial role in supporting a smoother and more coherent transition for children from pre- to primary school (Onyango, 2014). Such continuity in the educational environment and teaching practices supports emotional security and a positive self-image as learners (Rimm-Kaufman & Pianta, 2000), while similar learning materials can contribute to this continuity by providing familiar structures and expectations. In addition, learning materials can serve as a bridge between the more play-based methods of preschool and the formal learning structures of primary school, reducing academic shift (Ackesjö & Persson, 2019). When consciously selected across levels, these materials can foster collaboration between teachers, making the transition more coherent (Broström, 2017). Therefore, understanding teachers' perspectives on learning materials at both levels is essential for developing practices that support effective educational transitions.

## 1.2. Research context

The Estonian education system has undergone significant changes in the content and organisation of teaching in recent decades. Pedagogical principles that were considered important in the past, such as strictly controlled curricula and learning materials, have been replaced by a modern approach to learning (Poom-Valickis & Eisenschmidt, 2022; Õun *et al.*, 2008; Tuul *et al.*, 2011), which is reflected in both the National Curriculum for Early Childhood Education (2025) and the National Curriculum for Basic Education (2011/2014). Currently, Estonian educational life is primarily affected by the transition to Estonian-language education, which began in preschool institutions and grades 1 and 4 in 2024. From the beginning of the school year, teaching and educational activities must be conducted only in Estonian (Ministry of Education..., s.a.). Therefore, children must start learning all subjects, such as mathematics, natural sciences, etc., in Estonian. The lack of suitable learning materials, including language learning games, to teach children from other cultures has been highlighted in Estonia and elsewhere (Erdem & Tutkin, 2016; Peterson *et al.*, 2020; Timsina, 2021).

Estonian legislation provides teachers with general guidelines on how to choose learning materials. The regulation “Requirements for textbooks, minimum requirements for reviewing textbooks and reviewers, and types of minimum textbooks guaranteed by the state by grade and subject” (2016) establishes the substantive and technical requirements for evaluating school textbooks in Estonia. While this regulation provides a framework for textbook quality, the National Curriculum for Early Childhood Education (2025) only states that activities, learning, and learning materials are flexibly adapted, choices are enabled, and opportunities for active participation are created. Complementing this, the National Curriculum for Basic Schools (2011/2014) says that learning materials should be aesthetically pleasing, age-appropriate, and individually adaptable. Moreover, the Estonian professional standard (Occupational Qualifications Standard, 2025) requires pre- and primary school teachers to be responsible for choosing, adapting, and creating the learning materials for children at all levels. Together, these documents create a relatively general framework that guides the selection of learning materials throughout pre- and primary education.

Estonian teachers have the opportunity and the responsibility to choose learning materials. Teachers’ autonomy is supported by the Ministry of Education and Research, which points out that Estonian teachers and schools have autonomy in selecting learning materials (Ministry of Education, s.a.). Estonian legislation supports autonomy of choice; for example, the curricula have no specific requirements for pre- and basic school teachers regarding the principles they should follow when choosing learning materials. However, it is not known whether primary school teachers have this opportunity. At the same time, the ability to choose learning materials places a responsibility on teachers to choose those that are appropriate for the children’s developmental level. In both Estonian universities that provide teacher education (Tallinn University, 2024; University of Tartu, 2024), the universities’ teacher educational curricula approach the selection and

preparation of learning materials differently. Thus, Estonian teachers are provided not only with the opportunity to choose learning materials but with the necessary knowledge and skills to make these choices for the benefit of their students.

### 1.3. Aim and research questions

The main research problem of this study is the limited understanding of how pre- and primary school teachers choose learning materials. The relevance of this issue has grown in Estonia in the context of the ongoing transition to Estonian-language education (Ministry of Education..., s.a.), which requires the development of new materials (Peterson *et al.*, 2020). A coherent approach to material selection is therefore essential – not only to support teachers in this process but also to promote smoother transitions for children between educational levels. When examining how teachers choose learning materials, it is important to consider several aspects. First, to establish whether teachers actually have the opportunity to make these choices. If they do, the second step is to explore the goals and principles that guide their choosing process. Thirdly, an essential aspect is understanding how teachers themselves perceive the factors that influence their decisions, such as the role of legislation, colleagues, or students in shaping their choices.

This doctoral thesis aims to determine the opinions of pre- and primary school teachers on aspects related to the choice of learning materials. Based on that aim, the following research questions were posed:

1. What are the opportunities for pre- and primary school teachers to decide which learning materials to choose? (Article I)
2. What is the opinion of pre- and primary school teachers on the goals that learning materials should fulfil? (Article I)
3. Which principles do pre- and primary school teachers consider important for choosing learning materials? (Article I)
4. Which principles do preschool teachers follow when choosing language learning games for teaching Estonian as a second language? (Article II)
5. What are the factors that, according to pre- and primary school teachers, influence their choice of learning materials at macro-, meso-, and micro-level? (Article III)

This study comprises three sections based on the aims and research questions. First, the study examined the opportunities pre- and primary school teachers have to decide which learning materials to choose, as well as their opinions on the goals that learning materials should fulfil (Article I). Second, the study explored which principles pre- and primary school teachers consider important when choosing learning materials (Article I), as well as the principles preschool

teachers follow specifically when selecting language learning games for teaching Estonian as a second language (Article II). Third, the study investigated the factors that, according to pre- and primary school teachers, influence their choice of learning materials at the macro-, meso-, and micro-levels (Article III).

## 2. THEORETICAL BACKGROUND

### 2.1. Teachers' opportunities to choose learning materials

Teachers' professional expertise is strongly reflected in the decisions they make throughout the learning process, which play a crucial role in shaping students' academic and personal development. This decision-making process is a central part of teachers' everyday practice and reflects their professional expertise. An important aspect of this expertise is seen in the instructional choices, teachers make throughout the learning process (Diamond & Bulfin, 2023). Being conscious of these choices is essential, as they can have a direct impact on pupils' learning outcomes (Lloyd, 2019). Moreover, research has shown a strong link between teacher autonomy in decision-making and improved student achievement (Fougt *et al.*, 2020; Ingersoll *et al.*, 2018; Lloyd, 2019). Despite this, the teachers' ability to make professional judgments is increasingly challenged by ongoing systemic changes and shifting framework conditions, particularly in relation to the selection of learning materials (Christensen *et al.*, 2023).

Teachers' decisions regarding instructional planning, particularly the selection of learning materials, play a central role in the learning process. Decisions related to instructional planning, including the selection of learning materials, form the foundation of the entire learning process (Selander, 2022). Furthermore, it is essential that teachers have the opportunity to make informed and professional choices regarding learning materials, as these resources serve as tools to guide pupils' development. Well-designed, high-quality learning materials support both learners and teachers, enhancing learning outcomes (Milligan *et al.*, 2019; Van Den Ham & Heinze, 2018). In practice, teachers expect such materials to assist them in preparing teaching activities (Ljerka & Dubravka, 2021; Thobela *et al.*, 2023). Thus, the quality and appropriateness of learning materials are not only pedagogical tools but also key elements that shape the effectiveness of teaching and learning.

Teachers' opportunities to decide on learning materials differ across educational systems and reflect varying interpretations of professional autonomy. For example, Erss and Kalmus (2018) found that Finnish school teachers generally perceive autonomy more broadly, including shaping the educational field, whereas Estonian and Bavarian teachers tend to view autonomy as making classroom-level decisions, such as selecting methods, content, and learning materials. Similarly, Estonian preschool teachers express a preference for significant autonomy in curriculum development while also valuing clear guidelines on specific goals, methods, and content (Tuul *et al.*, 2015). This highlights that teachers often seek a balance between professional freedom and structural clarity. Increasing professional autonomy is a key trend in modern education policy, closely linked to quality assurance and school development (Keddie *et al.*, 2023; Lyle & Peurach, 2024). Similarly, autonomy in selecting and using learning materials remains a crucial aspect of teachers' professional responsibility.

Regarding learning materials, teachers' opportunities to choose vary greatly between countries. In some (e.g., the Netherlands, Ireland, Italy, Estonia, and certain US states), there is no government regulation of learning materials, granting teachers greater opportunity to choose materials. In others (e.g., Hong Kong and Norway), official approval and licensing are required, limiting teachers' freedom to select materials independently (Taguma & Barrera, 2019; Wilkens, 2011). Even where no national restrictions exist, decision-making may still be constrained by school principals, colleagues, or a lack of funding for new resources (Christensen *et al.*, 2023; Lalau, 2014; Reichenberg & Andreassen, 2017; Vojír & Rusek, 2021). In such cases, teachers often rely on available materials or develop their own (Viirpalu *et al.*, 2014). Importantly, teachers associate their opportunities to make decisions regarding learning materials with a corresponding responsibility to ensure these choices support effective teaching and learning. While teachers may not always have full freedom in selecting materials, they expect to be meaningfully involved in the decision-making process and value this professional responsibility (Erss, 2018; Griffith *et al.*, 2013; Kaseorg & Uibu, 2017).

## **2.2. Teachers' opinions on the goals of the learning materials**

In planning the learning process, the teacher defines educational goals based on curriculum requirements and selects appropriate teaching activities and learning materials accordingly. Learning materials play a crucial role in achieving these goals, particularly by supporting the development of learners' key skills. Learning skills have been the subject of extensive research and have been classified in multiple ways. Among these, the classification developed by Hattie *et al.* (1996), based on a meta-analysis of numerous studies, identifies three key domains of learning skills: cognitive, affective, and metacognitive. This framework has gained widespread recognition and is considered a classic in the field. Its accessibility and conceptual clarity make it particularly useful for practitioners, as it aligns well with teachers' existing knowledge and professional discourse. For these reasons, the present study adopts Hattie *et al.*'s (1996) classification as a basis for analysing the goals of learning materials. To support the holistic development of children's skills, it is essential that learning materials promote growth across all three domains: cognitive, affective, and metacognitive.

The cognitive goals of learning materials include remembering, understanding, applying, analysing, evaluating, and creating (Zorluoğlu & Güven, 2020). These skills are supported by learning materials that encourage children to engage in specific activities and facilitate the acquisition of knowledge and competencies. Teachers can foster cognitive development when the texts, tasks, and exercises within the materials are varied, meaningful, and well-structured (Lopera, 2015; Mikk, 2000). For example, in materials intended for pre- and primary school children, visual supports such as pictures can replace or accompany words in reading

passages to enhance comprehension. Tasks should encourage the use of learning strategies (Lopera, 2015), activate children's prior knowledge (Rotich *et al.*, 2018), and provide opportunities for solving real-life problems (Al-Edwan & Hamaidi, 2015). Relating content to everyday life makes learning more meaningful and creates opportunities for reflection and discussion. For younger learners, materials should allow for active engagement (Vitiello *et al.*, 2018), for instance, through hands-on activities (Birhan, 2018; Lee & Catling, 2017) or by expanding tasks beyond the page, such as when instructions are written in a workbook but the activity is carried out collaboratively in the classroom (Merritt *et al.*, 2017). Despite the emphasis on higher-order thinking skills in curricula and educational research, previous studies have shown that cognitively demanding goals, such as real-life problem-solving, are still underrepresented in learning materials (Barcelos Amaral & Hollebrands, 2017; Glasnovic Gracin, 2018; Hadar & Ruby, 2019).

Learning materials that support affective skills focus on children's emotions, attention, and self-perception, for example, their ability to stay motivated, concentrate, and overcome performance anxiety. Among affective goals, one of the most important is maintaining and enhancing motivation to learn, which well-designed learning materials can significantly support (Reints & Wilkens, 2019; Tomlinson & Masuhara, 2017). To achieve this, the materials must align with children's developmental levels and cognitive capacities, ensuring that tasks are engaging without being overwhelming. This includes using age-appropriate vocabulary and manageable text lengths (Garcia, 2014), selecting reading passages that match children's developmental stages (Panezai & Channa, 2017), and providing clear, supportive instructions and illustrative content (Lalau, 2014; Şimşek & Dündar, 2018). Furthermore, connecting learning materials to children's interests can help cultivate intrinsic motivation, encouraging them to explore topics more deeply (Şimşek & Dündar, 2018). In this way, affective learning goals, such as emotional engagement, positive self-perception, and perseverance, can be meaningfully integrated into the design of learning materials.

Metacognitive goals play a regulatory role in both cognitive and affective learning, indirectly contributing to learning outcomes (Vermunt, 1996). To support the development of metacognitive skills, learning materials should encourage children to plan, monitor, and evaluate their own learning in ways that are appropriate for their developmental stage (Griffith & Ruan, 2005). Teachers can promote these skills by using materials that help children reflect on their learning process, for example, by including tasks that enable them to assess whether and how they succeeded in an activity (Alemi *et al.*, 2013). The goal is to foster self-directed learners, which can be supported by learning materials that prompt children to reflect on the purpose of their learning (Zahan & Begum, 2013) and offer opportunities for them to take responsibility for their progress (Panezai & Channa, 2017). In addition, problem-solving tasks are particularly suitable for developing metacognitive awareness, as they require learners to reflect on strategies and solutions (Garcia, 2014). Such materials not only provide knowledge and skills but also help children develop analytical thinking, critical reasoning, and reflective learning strategies (Saad & Sankaran, 2020). However, age is an

important consideration in supporting and measuring metacognitive development. Research suggests that metacognitive processes begin to emerge more clearly around the age of eight, which poses a limitation for assessing such skills in younger children, particularly through self-report measures (Lara Nieto-Márquez *et al.*, 2020). Therefore, materials designated for younger learners must integrate metacognitive elements in a developmentally appropriate and guided manner.

### **2.3. Teachers' opinions on the principles for choosing learning materials**

The principle for choosing learning materials refers to the guidelines, teachers use to choose appropriate and effective materials for a specific educational context (Clark & Mayer, 2023). Learning materials are selected to enhance students' learning experiences, ensure the achievement of educational goals, and address learners' needs, abilities, and interests. Various studies have outlined different principles teachers can apply when choosing learning materials, although these principles may vary somewhat across subjects. For example, language education emphasises the development of linguistic skills (e.g., Bremholm, 2020), mathematics focuses on problem-solving skills (e.g., Czeglédy & Kovács, 2008), and environmental education highlights cultural and social context as a key principle (e.g., Chou, 2003). Additionally, numerous recommendation lists have been created, mainly for English language teaching and English as a second language (e.g., Tomlinson & Masuhara, 2017), as well as for digital learning materials (Hosie *et al.*, 2005; Vandenberg *et al.*, 2024).

To better understand the principles for choosing learning materials, it is important to consider sociocultural theory, which emphasises that learning occurs within social and cultural contexts, where children acquire knowledge and skills primarily through interaction and shared activities (Vygotsky, 1978). Within this framework, learning materials are not merely tools for delivering content but act as mediational means through which children engage with the world and others (Wertsch, 1991). John-Steiner and Mahn (1996) stress that learning is an inherently dialogic and dynamic process in which meaning is co-constructed through social interaction. Therefore, learning materials should support active and reciprocal participation rather than passive reception. Furthermore, learning materials should be culturally meaningful and foster language-rich, collaborative contexts, as these are central to supporting cognitive and social development (John-Steiner & Mahn, 1996).

Despite the existence of general principles and theoretical frameworks, there has been limited attention to pre- and primary school learning materials, resulting in insufficient principles to guide their selection at these educational levels. Understanding the principles for choosing learning materials is particularly important because a consistent approach across pre- and primary school can play a crucial role in facilitating a smoother and more coherent transition for children

(Onyango, 2014). The use of similar learning materials supports continuity by providing familiar structures and expectations, which are vital throughout all stages of education. Moreover, when learning materials are deliberately and consistently selected across educational levels, they can foster collaboration among teachers, further enhancing the coherence of the transition process (Broström, 2017). Accordingly, the principles outlined in this section are based on research on learning materials (e.g., Lebeda *et al.*, 2018; Panezai & Channa, 2017; Shieh *et al.*, 2023; Şimşek & Dündar, 2018) as well as the sociocultural approach (Vygotsky, 1978). These principles can be categorised into four main domains: *curriculum*, *learner*, *teaching and learning*, and the *structure and general characteristics of the materials*. Additionally, a fifth domain focuses specifically on *language learning*, reflecting one of the key themes of this doctoral thesis, early language acquisition. The following sections will explore each domain in greater detail.

*Curriculum.* Learning materials can be conceptualised as mediating tools between the intended curriculum, which reflects official educational policy, and the implemented curriculum as enacted by teachers in classrooms (Herbel-Eisenmann, 2007; Remillard, 2005). Ideally, learning materials should align with the curriculum while providing teachers with flexibility to meet instructional goals (Christensen *et al.*, 2023) and to support the development of children's key competencies and foundational skills (Iversen, 2014). Teachers use the curriculum as a framework from which to adapt learning goals to the individual needs and developmental levels of their students (Christensen *et al.*, 2023). Accordingly, lesson objectives should guide teachers in selecting appropriate activities from the available learning materials (Thobela *et al.*, 2023). Furthermore, in preschool and primary education, learning materials should promote engaging, developmentally appropriate learning and incorporate play-based elements to enhance children's motivation, participation, and enjoyment of the learning process (Cojocariua & Boghiana, 2014; Samuelsson & Carlsson, 2008).

*Learner.* Teachers expect learning materials to be age-appropriate, responsive to learners' developmental needs, and designed to encourage active participation and the expression of learners' perspectives (Panezai & Channa, 2017; Shieh *et al.*, 2023). Age-appropriateness in learning materials is therefore not only about aligning with children's chronological age, but about recognising the diversity of developmental stages and individual growth trajectories within the same age group (Şimşek & Dündar, 2018). Effective learning environments emerge when teachers understand learners' preferences and select materials that match their developmental readiness, thereby fostering engagement and meaningful learning (Selander, 2022). Given the variation in abilities and developmental levels within classrooms, teachers frequently adapt and modify learning materials to ensure that the needs of all children are met (Kolbeck & Röhl, 2018). This includes providing accessible content for students who require additional support (López-Medina, 2016), while also offering sufficient challenge for advanced learners to promote continued growth (Bartošová *et al.*, 2015). Furthermore, teachers highlight that clear, logically structured, and comprehensible materials enhance

children's ability to process and internalise new information, which is essential for cognitive development (Ho & Hsu, 2011; Lebeda *et al.*, 2018; Panezai & Channa, 2017). Importantly, in the context of pre- and primary education, learning materials should support children's ability to understand and reflect on their learning goals in an age-appropriate manner. Gradually encouraging learners to take responsibility for their own learning contributes to their development within a social and educational context (Panezai & Channa, 2017; Zahan & Begum, 2013).

*Teaching and learning.* Learning materials play a central role in supporting teaching and learning by helping teachers address the diverse needs of mixed-ability students and varying class sizes. Teachers expect materials to foster learner engagement, creativity, critical thinking, and the development of learning skills and strategies (Panezai & Channa, 2017; Shieh *et al.*, 2023). Creativity and critical thinking are increasingly recognised as fundamental competencies for 21st-century learning (Lucchiari *et al.*, 2019). However, such skills do not emerge spontaneously; they must be purposefully nurtured. For example, specially designed worksheets have been shown to support the development of critical thinking skills (Sinaga & Setiawan, 2022), while creativity can be enhanced through both individual and collaborative tasks that encourage imaginative thinking (Lebeda *et al.*, 2018; López-Medina, 2016). In preschool and primary education, play-based learning is considered essential, as it supports not only cognitive growth but also social, emotional, and motor development. Learning materials that incorporate playful, exploratory, and interactive elements, such as songs, rhymes, hands-on tasks, and movement, are seen as particularly valuable for fostering engagement and development in young learners (Birhan, 2018; Samuelsson & Carlsson, 2008). Tasks may begin in a workbook or textbook but should be designed to be completed collaboratively in the classroom or outdoor settings, supporting learning through shared experiences and context-sensitive exploration (Merritt *et al.*, 2017; Vitiello *et al.*, 2018).

*Material structure and general aspects.* Several principles have been identified regarding the structure of effective learning materials. Materials should progress from simple to more complex content and remain easily modifiable or expandable to suit various classroom needs. They should be free from errors, such as omissions, spelling or grammatical mistakes, and incomplete sentences, and be up-to-date, durable, and easily reproducible (Panezai & Channa, 2017; Shieh *et al.*, 2023). Visual elements are considered essential: a sufficient number of relevant images helps make content more concrete and relatable, with authentic illustrations supporting comprehension and enriching the information provided in the text (Lebeda *et al.*, 2018). Teachers further emphasise the importance of logical and effective organisation. Each task should include clear instructions (Panezai & Channa, 2017), chapters should begin with a topic introduction (Zahan & Begum, 2013), and be followed by summaries and self-assessment opportunities (López-Medina, 2016). A well-structured layout is seen as crucial for supporting learners' understanding and overall benefit (Kraishan & Almaamah, 2016). In addition, content inclusivity is a key concern. Learning materials should

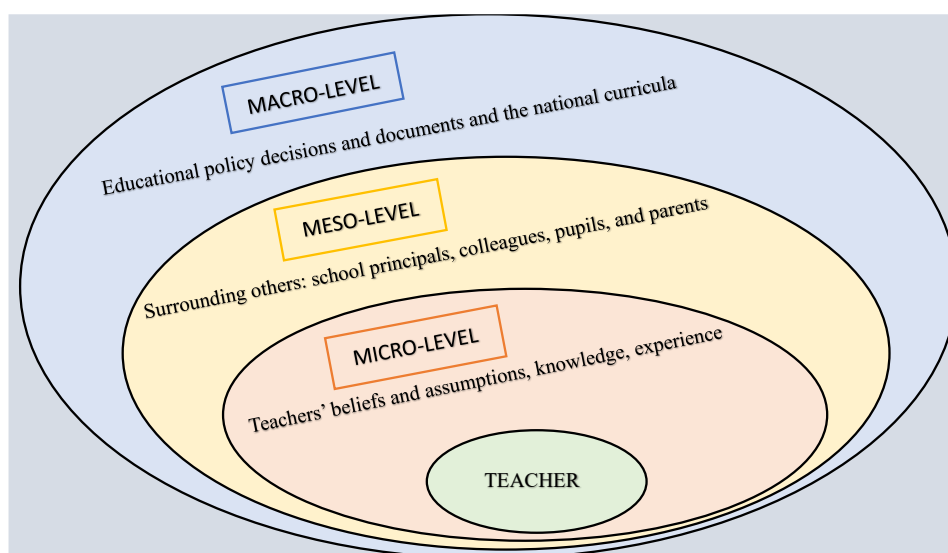
present a positive and respectful view of diverse minority groups across ethnic, professional, generational, and social lines, ensuring that all learners feel represented and valued (Panzai & Channa, 2017). As pre- and primary classrooms become increasingly multicultural, teachers expect learning materials to actively support the development of children's cultural awareness and intercultural competence (López-Medina, 2016).

*Language learning.* Teachers have pointed out that one of the challenges in language learning is the evolving and often varied language proficiency levels among children (Argus *et al.*, 2021; Goullier *et al.*, 2015). Effective language instruction should be based on an understanding of each learner's linguistic competence and must be planned accordingly (Goullier *et al.*, 2015). To support this, differentiated learning materials, those that allow for the adaptation of content and activity difficulty based on learners' language level, are considered essential in both pre- and primary school settings (Argus *et al.*, 2021; Fleta Guillén, 2018; Schwartz, 2020). Play-based approaches have proven particularly effective for language acquisition at an early age. Language learning games provide children with age-appropriate, engaging opportunities to acquire language skills in a natural, motivating, and socially meaningful way (Griva & Semoglou, 2012; Meriläinen & Piispanen, 2022; Weisberg *et al.*, 2013). When selecting such games, it is crucial that the material aligns with the child's developmental stage, interests, and intrinsic motivation and supports specific language acquisition goals (Broström, 2017). Language learning is not a solitary process but occurs through interaction with others and the use of meaningful cultural tools – play being one of the most powerful among them (Hirsh-Pasek & Golinkoff, 2008; Vygotsky, 1978). Therefore, learning materials should not only guide teacher–child interaction but also promote peer-to-peer communication, enabling children to construct meaning collaboratively and develop linguistic competence through real-life use (Broström, 2017; Weisberg *et al.*, 2013). Moreover, language is not taught in isolation. Especially in early years education, it is the medium through which all other subjects, such as science, maths, and arts, are taught and explored. This makes it essential for language learning materials to support not only linguistic development but also cross-curricular integration, allowing children to build content knowledge and cognitive skills through language-rich experiences.

## **2.4. Factors influencing the teachers' choice of learning materials**

Among the various aspects of a teacher's professionalism, decision-making, and the ability to choose the relevant learning materials are essential. When teachers make choices about their use of learning materials, they need to consider many different and sometimes conflicting factors, such as the demands of the curriculum, the availability of learning materials, the composition of the group of students, and their knowledge and experience (Christensen *et al.*, 2023).

Bronfenbrenner's (1979) ecological model helps to gain a deeper understanding of what may influence teachers' choices when selecting learning materials. Originating in human development studies, Bronfenbrenner's model has been applied to a wide range of phenomena, including studies of decision-making. For example, the adapted model has been used to explain teachers' decision-making processes at various levels (e.g., Kaseorg & Uibu, 2017) and to examine the opinion of English teachers regarding parental engagement towards the encouragement of students to learn English as a second language in school (e.g., Hsing & Adnan, 2022). This model highlights the complexity of an individual's sociocultural world and the factors that influence their growth and development. In the present study, we adapted Bronfenbrenner's ecological model to explain the factors that teachers perceive as influencing their choice of learning materials at the macro-, meso-, and micro-levels (see Figure 1).



**Figure 1.** Factors that influence teachers' choice of learning materials (based on an adapted Bronfenbrenner ecological model)

The macro-level includes factors teachers cannot control (e.g., educational policy decisions and regulations, including the national curricula). Although the impact of the curriculum varies from country to country, teachers have generally recognised that it does not affect their decisions (Griffith *et al.*, 2013; Jamieson-Proctor & Byrne, 2008), which includes their choice of learning materials. Studies show that when changes are made to the curriculum, publishing houses are slow to adjust, and consequently, textbook literature is rarely in line with the current curriculum (Tomlinson, 2023; Vojřr & Rusek, 2021). Although the teacher can interpret the curriculum, make choices, and decide on using learning materials, both exist before the teacher makes decisions (Christensen *et al.*,

2023). In such a case, if teachers feel the textbooks are not in line with the curriculum requirements, they prefer to use a newly published textbook (Vojíř & Rusek, 2021), choose to replace a part of the published material (Tomlinson, 2023), or create learning materials themselves (Stará *et al.*, 2017). The focus on interdisciplinarity and the less detailed curriculum may give teachers the space to search for, facilitate, and develop learning materials beyond the textbook (Christensen *et al.*, 2023).

At the meso-level, the emphasis is on “surrounding others” in the teacher’s working life, such as principals (Lloyd, 2019) and colleagues (Bjursten *et al.*, 2024; Reichenberg, 2014). Although principals may believe they provide teachers with decision-making opportunities (Brezicha *et al.*, 2019), teachers’ decisions are influenced more by their colleagues rather than their principals (Bjursten *et al.*, 2024). Furthermore, learning materials may depend on the teacher’s work experience. For example, beginner teachers would rather trust experienced colleagues (Garcia, 2014). In contrast, experienced teachers are likelier to choose learning materials themselves (Vojíř & Rusek, 2021) or consult school principals for advice (Lloyd, 2019).

Teachers’ decisions at the meso-level are also influenced by pupils (Griffith *et al.*, 2013; Noni, 2016) and their parents (Fung & Cheng, 2012; Lynch, 2015). Teachers know their students and consider their needs when choosing learning materials (Griffith *et al.*, 2013; Kolbeck & Röhl, 2018). Therefore, teachers want to influence the choice of materials by choosing an appropriate textbook suitable for the specific needs of their students rather than assuming that one textbook “fits all” (Reichenberg & Andreassen, 2017). For example, additional tasks can be given to the more talented students whilst waiting for the slower students to catch up (Andriana, 2022). Teachers prefer to choose learning materials that offer such an opportunity.

Sometimes, teachers make decisions based on parents’ expectations, even if they are not the best choices for attaining educational goals (Karabon, 2021). For example, in some preschools, teachers use specific worksheets and workbooks requested by the parents (Fung & Cheng, 2012; Lynch, 2015). The influence of parents on the choice of learning materials became evident during the COVID-19 pandemic, when parents were unhappy with their children spending time in front of a screen or using e-books (Lau & Lee, 2021; Sung & Chiu, 2022).

Micro-level decisions relate to teachers’ professionalism, which has several aspects, such as teachers’ beliefs and assumptions (Siuty *et al.*, 2018), experience gained, and knowledge obtained from teacher education (Griffith *et al.*, 2013). Several studies showed that choosing appropriate learning materials involves experience (Griffith *et al.*, 2013; Karabon, 2021; Mukundan, 2022). Relying mainly on previous experience can lead to choosing unsuitable learning materials, as teachers may make decisions based on their preferences rather than pupils’ needs (Siuty *et al.*, 2018). However, it is interesting that both beginner and experienced teachers preferred self-created rather than commercial materials (Mukundan, 2022). The reason could be a lack of knowledge about choosing learning

materials, because a teacher's education does not always provide sufficient knowledge regarding how to identify suitable learning materials (Reichenberg, 2014). In contrast, even when teacher education does provide knowledge about learning materials, including selecting materials, teachers do not put this knowledge into practice (Fougt *et al.*, 2020). However, decision-making should be a more important aspect of teacher education.

## 3. METHODOLOGY

### 3.1. Research design

The study described in this doctoral thesis was conducted over a period of six years (2019–2025) in three studies, and its aim was to determine the opinions of pre- and primary school teachers on aspects related to the choice of learning materials. The mixed-method design used systematically combines methodologies from quantitative and qualitative research (Johnson *et al.*, 2019; Niglas *et al.*, 2023; Weis *et al.*, 2019). Mixed-method research allowed for perspectives on the topic from various viewpoints, sources, and methodologies, where quantitative data offers a broad general understanding and qualitative data provide a detailed understanding of a problem (Creswell & Plano Clark, 2018; Mertens *et al.*, 2016). A qualitative approach was used to determine teachers' opinions. However, quantitative methods were used to compare the opinions of pre-and primary school teachers to establish whether the selection of learning materials at the two school levels is similar or different. It is believed that mixed methods help improve the overall quality of research (Johnson *et al.*, 2019) and gain a deeper and more diverse understanding of teachers' perceptions (Niglas *et al.*, 2023).

The research consisted of three studies. Study I aimed to determine the opportunities pre- and primary school teachers have to make decisions when choosing learning materials, and what goals they believe these materials should fulfil. A questionnaire was used to collect data from a large number of teachers. They can be used to gather independent opinions from many respondents, which can then be compared using statistical methods (Johnson *et al.*, 2019). When conducting research using questionnaires, several aspects must be considered in advance: defining the aim of the study, determining the sample size and data collection method, and designing and piloting the questionnaire (Bihu, 2021). This study employed a quantitative approach to compare teachers' opportunities to choose learning materials and their opinions on the goals of such materials, to identify similarities and differences between pre- and primary school teachers. The results of Study I are shown in Article I.

Study II looked at the principles teachers employ when choosing learning materials and language learning games. Data were collected in two parts: the first part used data from Study I. To avoid influencing teachers' opinions, they were asked in a free-response format to name three principles they consider important when choosing learning materials. This approach was chosen because open-ended questions in questionnaires have proven to be a valuable tool for exploring respondents' understanding of key concepts (Lenzner & Neuert, 2017). In addition to identifying the principles teachers mentioned, the study aimed to determine which principles were considered more important based on how frequently they were cited. The second part used the same questionnaire as the first; however, additional data on the choice of language learning games was added. The

decision to focus on teachers' opinions of language learning games was prompted by the transition to Estonian-language instruction, which requires the development of suitable learning materials for teaching Estonian as a second language, including language learning games. The results helped clarify preschool teachers' opinions on the principles of learning materials. The results of Study II are in Articles I and II.

Study III examined the factors influencing pre- and primary school teachers' choices of learning materials through semi-structured interviews. Previous research into the selection of learning materials was limited; therefore, interviews were conducted using the data collection method. Semi-structured interviews were deemed the most appropriate because they allow the researcher to be flexible in questioning and ask follow-up questions, based on previous responses (Ruslin *et al.*, 2022). Moreover, semi-structured interviews can provide deeper insights into the topic, as each participant can express their understanding, personally, potentially revealing new meanings (Johnson *et al.*, 2019). This study aimed to gain a more comprehensive understanding of the factors influencing teachers' choices of learning materials, which this approach facilitated. The results of Study III can be found in Article III. A summary of the research methods used at different stages of the thesis is provided in Table 1.

**Table 1.** A summarised overview of the research methods addressing the stages of the thesis.

	<b>Research questions</b>	<b>Samples</b>	<b>Instrument</b>	<b>Data analyses</b>	<b>Articles</b>
<b>Study I</b>	RQ 1: What are the opportunities for pre- and primary school teachers to decide which learning materials to choose?  RQ 2: What is the opinion of pre- and primary school teachers on the goals that learning materials should fulfil?	111 teachers (64 pre- and 47 primary school teachers)	Questionnaire	Descriptive statistics, $\chi^2$ -test, Mann-Whitney U-test	Article I
<b>Study II</b>	RQ 3: Which principles do pre- and primary school teachers consider important for choosing learning materials?	Same as Study I	Same as Study I	Quantitative content analyses	Article I
	RQ 4: Which principles do preschool teachers follow when choosing language learning games for teaching Estonian as a second language?	50 preschool teachers	Questionnaire	Thematic analysis, descriptive statistics, and Friedman's t-test	Article II
<b>Study III</b>	RQ 5: What are the factors that, according to pre- and primary school teachers, influence their choice of learning materials at macro-, meso-, and micro-level?	19 teachers (9 pre- and 10 primary school teachers)	Semi-structured interviews	Qualitative content analysis	Article III

## 3.2. Participants

All studies involved teachers from pre- and primary schools, as the aim was to find out the opinions of teachers working at these educational levels (see Table 1). In the context of this doctoral thesis, the term “preschool” refers specifically to the final year of kindergarten in Estonia (for children aged 6–7), whereas “primary school” denotes the first stage of formal education, typically involving children aged 7–10 years of age.

Study I sample consisted of 111 teachers, including 64 from preschools and 47 from primary schools. An invitation to participate was sent to 70 pre- and primary schools. The average age of preschool teachers was 46.7 years ( $SD = 11.4$ ), and that of primary school teachers was 44.7 years ( $SD = 10.4$ ). The groups of teachers were similar in terms of work experience. The average work experience of preschool teachers was 19.6 years ( $SD = 13.4$ ), and that of primary school teachers was 20.6 years ( $SD = 12.2$ ). The pre- and primary schools from which teachers were invited to participate in the study were connected to university teacher education, for example, by serving as practical bases for students. The pre- and primary school teachers were from different counties, rural and urban areas, and came from both large and small schools.

In Study II, there were two samples. The first sample was the same as in Study I. The second sample consisted of 50 teachers from 30 Estonian preschools (an invitation to participate was sent to 55 preschools). The average age of respondents was 45 years ( $SD = 12$ ), and their average work experience was 16 years ( $SD = 13$ ). Teachers needed to have experience with children from other linguistic and cultural backgrounds, as well as in teaching Estonian as a second language, because the survey aimed to gather teachers’ opinions on selecting language-learning games suitable for teaching a second language.

The Study III sample consisted of 19 teachers, 9 preschool teachers, and 10 primary teachers from different schools in Estonia. The average age of respondents was 41.6 years ( $SD = 8.3$ ), and their teaching experience averaged 14.6 years ( $SD = 9.9$ ). It was assumed that preschool teachers had experience teaching the last group of children in preschool, i.e., children aged 6–7, because this age group had the largest selection of learning materials available (including workbooks and textbooks). Primary school teachers were expected to have experience teaching children in grades 1–3, i.e., children aged 7–10 years old.

## 3.3. Instruments

Three instruments were used to conduct the doctoral theses: semi-structured interviews and two questionnaires (see Table 1). In Study I, a questionnaire was used to collect data (Appendix 1). The questionnaire was developed using, in part, statements from the Teacher Teaching Goals and Activities Survey (Uibu & Kikas, 2014; Uibu *et al.*, 2017). It examined the opportunities of pre- and primary school teachers to choose learning materials and the goals that learning materials

should fulfil. To investigate the extent to which teachers can decide for themselves about the learning materials they choose, a three-point scale was used (“I can completely decide on the choice of learning materials”; “I can decide and participate in the choice of learning materials to some extent”; “I cannot decide or participate in the choice of learning materials”). Teachers were then asked what goals good learning materials should fulfil. For this purpose, a list of 18 options was used, from which teachers had to mark on a yes-no scale the options that they considered important for choosing learning materials.

In Study II, data were collected in two parts. First, data were collected through the Study I questionnaire; teachers were asked what they considered the three most important principles for choosing learning materials. Second, the questionnaire used in Study I was supplemented based on the purpose of the study and used to collect teachers’ opinions for choosing language learning games (Appendix 2). The questionnaire consisted of four components. The first contained 21 statements about learning material, which were divided into four areas: developing second language skills, knowledge development, considering children’s individuality, and developing general skills. The second part contained a list of 11 criteria from four areas: instruction, content, differentiation, and implementation of the educational game. In the third part, teachers were asked to name the three most important principles on which they based their selection of games for teaching Estonian as a second language. In the fourth part, teachers were asked about their background information.

Study III data were collected through semi-structured interviews, which included 12 main questions (Appendix 3). For this purpose, an interview plan was developed and tested with one teacher. After the pilot interview, the transcript was read and compared with the recorded interviews to achieve the necessary reliability. The relevance and clarity of the questions were discussed with the research team. In a semi-structured interview, the interviewer has a pre-prepared framework of research topics to discuss (Ruslin *et al.*, 2022). Teachers were asked about their decision-making power in choosing learning materials (two main questions: “To what extent can you choose learning materials?”; “Should teachers have the opportunity to choose learning materials?”). Then they were asked about the factors influencing the choice of learning materials (10 main questions, e.g., “What knowledge have you acquired about learning materials during your teacher training?”; “How much do the children in the class/group influence your choice of learning materials?”).

### **3.4. Data collection**

In Study I, an invitation to participate was sent to primary school ( $N = 32$ ) and preschool ( $N = 38$ ) principals with a request that it be given to all teachers who met the study criteria, which means teachers who teach children in pre- and primary school. A link to an electronic questionnaire was included in the invitation. Teachers were given one week to respond to the questionnaire.

In Study II, an invitation to participate was sent to those Estonian preschool institutions (N = 55) who taught children from different cultural backgrounds. School principals were sent a link to an electronic questionnaire, which they were asked to forward to teachers with experience teaching Estonian as a second language. Teachers were asked to respond within a week.

Study III invited teachers to participate via e-mail, which explained the aim of the study. Data were collected through semi-structured interviews, which were carried out at a location chosen by each individual (15 teachers had face-to-face interviews, and 4 chose online). The concept of learning materials was clarified at the beginning of the interview by asking what the teachers meant by it, and stating that in this interview, we are primarily talking about paper-based learning materials, such as workbooks and textbooks. Interviews, which averaged 35 minutes (SD = 9.03), were transcribed word-for-word and then re-heard to check their accuracy. The transcript averaged 11 pages (SD = 2.24), totalling 206 pages of text.

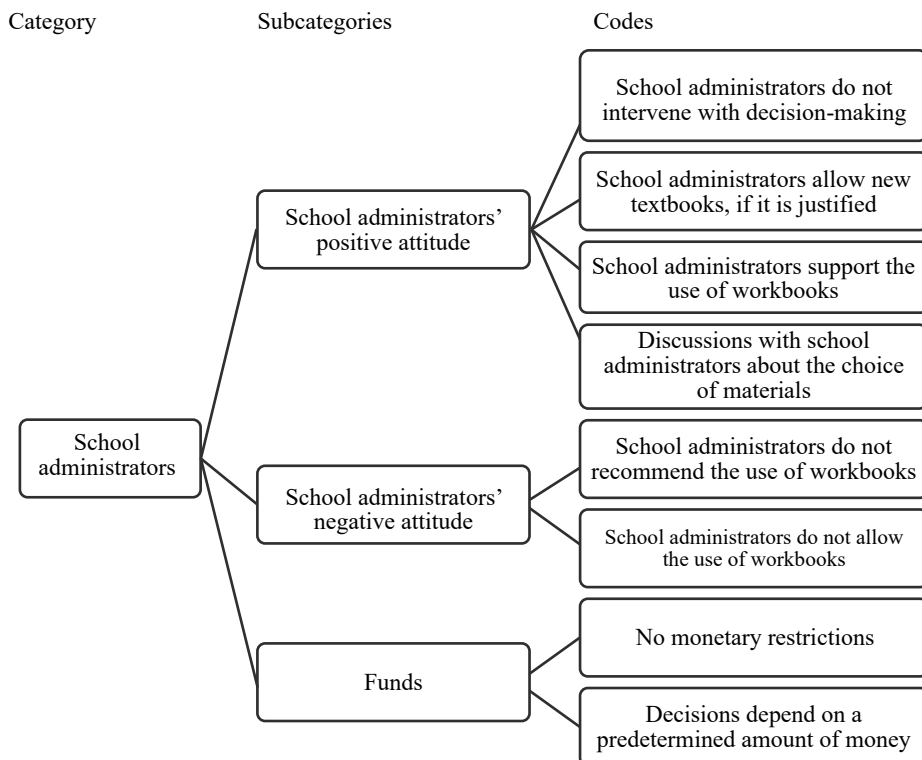
### 3.5. Data analysis

Quantitative and qualitative research methods were used to analyse the data collected during the three studies of this doctoral thesis (Table 1). In Study I, quantitative content analysis and descriptive statistics (percentages) were used for data analysis. To determine the differences between pre- and primary school teachers in their ability to choose their learning materials, a  $\chi^2$ -square test was used (Article I). The learning goals were divided into three groups based on Hattie et al.'s (1996) classification of learning skills: cognitive, affective, and meta-cognitive goals (Article I). Based on how many goals each teacher selected from the list, the teacher's aggregate medians for all three groups of goals were calculated. A non-parametric Mann-Whitney U-test was used to compare what goals teachers consider important in good learning materials.

In Study II, data analysis consisted of two parts. Firstly, to gain an overview of the principles for choosing learning materials, teachers' responses were analysed using the quantitative content analysis method (Article I). Quantitative content analysis was used to identify key characteristics and assess their use (Parry, 2020). To ascertain the principles of material selection, relevant data segments (words, phrases, or sentences) were noted in the teachers' responses, selected as the unit of analysis, and primary codes were created. Based on substantive coincidences, four main categories emerged regarding the principles for choosing learning materials. Secondly, combined methods were used to analyse the data and determine teachers' opinions regarding the selection of language learning games; including descriptive statistics, the Friedman test, and thematic analysis (Article II). Descriptive statistics (percentages, mean, and standard deviation) were used to identify teachers' assessments of the opinions for using a language learning game and to evaluate its selection criteria. The non-parametric Friedman test was used to compare teachers' assessments of the selection criteria

areas. To gain an overview of teachers' opinions on principles for choosing language learning games, teachers' responses were analysed using the thematic analysis method. This flexible research method provides a detailed yet complex overview of the data (Vaismoradi *et al.*, 2013). At the beginning of the analysis, the thematic data segments (words or phrases) were identified, and primary codes were created. The codes were divided into sub- and main themes based on content similarity. A total of nine sub-themes and three main themes were formed during the analysis.

A qualitative content analysis was used in Study III, which aimed to explore teachers' opinions on the factors influencing the selection of learning materials. Qualitative content analysis was used to understand the learning materials selection process, in line with the exploratory work on the unknown phenomenon (Elo *et al.*, 2014; Vaismoradi *et al.*, 2013). The data analysis consisted of four phases. In phase one, meaningful units, such as phrases or sentences that conveyed a single thought, were noted throughout the dataset. In the second phase, the whole data set was encoded. The initial codes were ticked, after which substantially similar codes were merged and then grouped into categories and subcategories. An example of this is shown in Figure 2 from Article III. The grouping of codes was based on the principle of similarity.



**Figure 2.** An example of the “School administrators” category’s formation

Based on an adapted version of Bronfenbrenner's ecological model, the categories were divided into three main categories (i.e., the macro-, micro-, and meso-levels). Regarding the research question, "What factors influence the selection of learning materials in the opinion of pre- and primary school teachers?" three main categories (Bronfenbrenner's macro-, meso-, and micro-levels), eight categories, and 25 subcategories were identified (see Article III). The frequency of each category and subcategory in the teachers' responses was calculated based on that distribution.

### **3.6. Validity, reliability, and trustworthiness**

The concepts of validity, reliability, and trustworthiness of the instruments used for the research are explained below:

*Validity.* An instrument is considered valid if it allows the collection of correct and relevant data on the phenomenon being studied (Flake *et al.*, 2022). Interviews were used to collect data in Study I. Researchers developed an interview plan, which was piloted with one teacher and then discussed among the research team to ensure the relevance and clarity of the questions. Questionnaires were used in Studies I and II. To increase the instrument's validity, the questionnaire was tested with four preschool and three primary school teachers, who were asked to complete it and provide feedback. Based on their input, the wording of the statements was refined to ensure suitability for both pre- and primary school contexts.

*Reliability.* During the coding process, it is important to remember that a study's reliability increases when another researcher codes the same data and yields similar results (Bazeley, 2013). In Studies II and III, two researchers independently coded the responses and compared their results to ensure reliability. The content of the codes was nearly identical, with only minor differences in wording. Coding was later repeated to further ensure reliability across all studies. To enhance the reliability of the analysis, researchers discussed their coding at each stage until reaching consensus (Creswell & Miller, 2000). All codes were reviewed collaboratively, merged or reworded as required, and any discrepancies in the final results were resolved by returning to the original data and discussing until agreement was reached.

*Trustworthiness.* The trustworthiness of the study was ensured based on four established criteria: credibility, dependability, transferability, and confirmability (Elo *et al.*, 2014; Lincoln & Guba, 1985; Morrow, 2005). Credibility, which refers to confidence in how well the data reflect the intended focus (Polit & Beck, 2012), was enhanced through several forms of triangulation: data collection (in Study III, written responses were followed by clarification during interviews), analysis methods (Studies II and III combined content and quantitative analysis), and researcher involvement (independent double-coding and comparison of results across all studies). Participant selection also supported credibility, as only teachers with relevant qualifications and experience (in Study II, experience in

teaching a second language to children) were included. Interview transcripts were checked against audio recordings, and representative quotes were selected to clearly illustrate key findings. Dependability, defined as the stability of data over time and under varying conditions (Elo *et al.*, 2014), was supported through pilot studies and repeated coding by the same and different researchers at different stages. Transferability was addressed by providing a detailed account of the Estonian research context in a publication in the International Journal. Teachers were informed about the study's aims and procedures, including sampling and data use. At the end of the interviews, participants could add further comments, and all received their transcripts for verification and correction. Confirmability was ensured through a well-structured research plan, with all conclusions grounded in the data.

### **3.7. Ethical benchmarks of the study**

The Estonian Code of Conduct for Research Integrity (Centre for Ethics, 2023) outlines the responsibilities of researchers who adhere to ethical principles. A researcher is always obliged to protect the people participating in their research, and it is necessary to ensure that participants know how their data will be presented and stored (Dooly *et al.*, 2017). The studies on which this doctoral thesis is based adhered to all the principles of good research practice: informed consent, protection of the confidentiality of both the participants and the data.

*Informed consent* is a crucial principle of research ethics, which means agreeing to participate in a study after being fully informed of its purpose, procedures, risks, benefits, alternative procedures, and the limits of confidentiality (Johnson *et al.*, 2019). Prior informed consent must be obtained from participants. All participants were informed about the voluntariness of participation via an email inviting them to the interview and to answer the questionnaire. They were informed at the beginning of the interview or questionnaire about the purpose of the study and were sufficiently knowledgeable about it to decide whether to participate. Interviewees and those completing the questionnaire could withdraw at any time (incomplete questionnaires were not used in the analyses).

*Protection of the confidentiality of the participants and the data.* Ethical standards stipulate that researchers are ethically obliged to protect the confidentiality of participants and their data (Johnson *et al.*, 2019). Pseudonyms were used to protect participants' privacy; these were assigned before the transcription phase to ensure confidentiality. The author of the doctoral thesis made a list of names and pseudonyms. Questionnaire data were collected anonymously; teachers were only asked their age, work experience, and their place of work. Therefore, none of the data collected can be linked to the respondents. The researcher has to protect the personal data of participants. All collected data was protected and stored, to which only the author had access. The data was stored on a memory stick, with a separate file containing participant information and collected data. The data will be deleted after the doctoral thesis is defended.

### 3.8. Researcher's role

The researcher's prior experiences, positions, and perspectives play a crucial role in shaping both the conduct of the study and the interpretation of its findings (Levitt *et al.*, 2018). Furthermore, all research endeavours inherently include biases and assumptions and reflect the personality of the researcher (Sword, 1999). Consequently, the researcher's role is pivotal in ensuring the credibility and trustworthiness of the study. In the following, I provide a transparent account of my background and perspectives, as well as the measures taken to maintain impartiality throughout this research.

My pedagogical career began in early childhood education and care. This experience provided me with a deep understanding of the teacher's role, including the routine task of selecting appropriate learning materials for young children, over which I had complete autonomy. However, this autonomy came with the responsibility to justify such choices professionally. Consequently, I engaged in reflective practice, critically considering both the purpose behind using specific materials and their alignment with children's developmental needs as well as my own educational goals. Drawing on these experiences, I developed original learning materials, including a methodological handbook focused on teaching mathematics to 2–3-year-old children.

My role as a researcher developed at the University of Tartu, which I joined in 2020. While I regarded myself as an expert in early childhood education, engaging with research demanded rigorous interaction with scientific literature, methodological frameworks, and data analysis techniques. Throughout my doctoral studies, I benefited from the support of an expert working group at the university, which provided constructive and valuable feedback at every stage of the research process – from study design through to data collection and analysis. This collaborative environment helped mitigate potential biases stemming from my attitudes and opinions, thereby enhancing the objectivity and reliability of the study. I contend that my long-term involvement with the topic of learning materials in early childhood education enriched the study by bringing an informed, knowledge-based perspective to both its execution and the interpretation of findings. At the same time, I conscientiously adhered to good research practices to prevent my personal experiences and beliefs from unduly influencing the study's outcomes.

Regarding data collection, although I was responsible for contacting the interviewees and conducting the interviews, I had no prior acquaintance with them aside from their meeting the inclusion criteria. Furthermore, the qualitative data obtained via the questionnaire were anonymised and could not be linked to individual respondents. These factors collectively contributed to minimising bias in the analysis and interpretation phases. At the same time, establishing personal contact during the interviews facilitated open communication. In particular, I observed that a brief introduction was sufficient to encourage participants to share their genuine thoughts and provide candid feedback without attempting to please the researcher. Reflective awareness of my role increased my attentiveness to the subjectivity inherent in interpreting data collected through both interviews and questionnaires.

## 4. RESULTS

The doctoral theses aimed to determine the opinions of pre- and primary school teachers on aspects related to the choice of didactical learning materials. The following section presents an overview of the findings in three parts. The first part presents the results of Study I, focusing on teachers' opportunities to choose learning materials and their views on the goals of these materials. The second part presents the findings of Study II, which explored the principles behind the choice of learning materials and language learning games. Finally, the third part summarises the results of Study III, highlighting teachers' opinions of the factors that influence the choice of teaching materials. The results are more thoroughly described in articles I–III. An overview of the most important results based on studies and the research questions is given in Table 2.

**Table 2.** Overview of the main research results.

Study	Research question	Article	Main results
<b>Study I</b>	RQ 1. What are the opportunities for pre- and primary school teachers to decide which learning materials to choose?	Article I	Opportunities to decide which learning materials to choose: <ul style="list-style-type: none"> <li>– All preschool teachers can decide which learning materials to choose.</li> <li>– Most primary school teachers have limited opportunities to choose learning materials.</li> </ul>
	RQ 2. What is the opinion of pre- and primary school teachers on the goals that learning materials should fulfil?	Article I	Goals of learning materials: <ul style="list-style-type: none"> <li>– Cognitive and affective goals were considered important by both pre-and primary school teachers.</li> <li>– Primary school teachers rated goals that support the development of children’s metacognitive skills as more important than preschool teachers.</li> </ul>
<b>Study II</b>	RQ 3. Which principles do pre- and primary school teachers consider important for choosing learning materials	Article I	Teachers’ opinions on principles for choosing learning materials: <ul style="list-style-type: none"> <li>– correspond to the curriculum;</li> <li>– include diverse content and tasks;</li> <li>– contain clear and understandable content and tasks.</li> </ul> Only a few pre- and primary school teachers mentioned that learning materials should be playful.
	RQ 4. Which principles do preschool teachers follow when choosing language learning games for teaching Estonian as a second language?	Article II	Teachers’ opinions on principles for choosing language learning games: <ul style="list-style-type: none"> <li>– help develop a child’s second language skills;</li> <li>– focus on the child’s individuality;</li> <li>– support the development of a child’s knowledge in other subject areas such as mathematics, science, etc.</li> </ul> In addition to the second language, the language learning game should be related to the goals of the curriculum and integrate different areas of learning.

Study	Research question	Article	Main results
Study III	RQ 5. What are the factors that, according to pre- and primary school teachers, influence their choice of learning materials at macro-, meso-, and micro-level?	Article III	<p>Factors that influence teachers when choosing learning materials:</p> <ul style="list-style-type: none"> <li>– At the macro-level, complying with the curriculum, publishers, and money. <ul style="list-style-type: none"> <li>○ Preschool teachers are not sure that published learning materials correspond to the curriculum, but primary school teachers trust publishers.</li> </ul> </li> <li>– At the meso-level, the influence of surrounding individuals (principals, colleagues, parents, and pupils). <ul style="list-style-type: none"> <li>○ For primary school teachers, the main influence is colleagues, because learning materials are mostly selected collectively.</li> <li>○ Both pre- and primary school teachers perceive that parents do not intervene in the selection of learning materials.</li> </ul> </li> <li>– At the micro-level, the professionalism of teachers. <ul style="list-style-type: none"> <li>○ Teachers did not indicate that the knowledge gained from teacher education influenced their choice of learning materials.</li> </ul> </li> </ul>

## **4.1. Pre- and primary school teachers' opportunities and goals of choosing learning materials**

As a starting point, the Study I aimed to examine the opportunities that pre- and primary school teachers have to make decisions regarding the learning materials they choose (see Article I). Teachers were asked to answer whether they can make their own decisions completely, to some extent, or not at all. All teachers participating in the study agreed that the teacher should be able to decide which learning materials to use. However, pre- and primary school teachers estimate that their opportunities to choose learning materials differ. Most preschool teachers (92,2%) pointed out that they have the full autonomy to decide which learning materials to use in the main areas of learning activities. Some teachers did mention that their choice was limited (7,8%). However, all teachers at preschool had the opportunity to choose learning materials, whereas primary school teachers had more limited options. Most primary school teachers who participated in the study stated that they have some control over learning materials (76,6%). However, some cannot choose learning materials independently and must use those chosen by others (14,9%). Differences in the ability of pre- and primary school teachers to choose learning materials were analysed using a  $\chi^2$ -square test. A statistically significant difference in favour of preschool teachers was revealed between the two groups' assessments ( $\chi^2 = 74.11$ ,  $p < 0.001$ ).

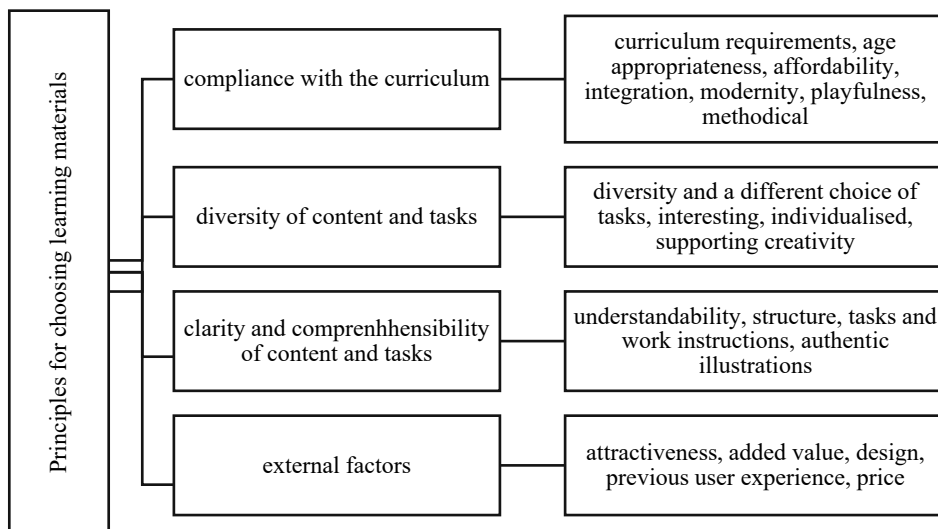
Next, in Study I, the opinions of pre- and primary school teachers regarding the goals that learning materials should fulfil (see Article I) were explored. The goals that good learning materials should help achieve were classified into three groups based on content: cognitive, affective, and metacognitive. Both pre- and primary school teachers considered it important that learning materials should support children's cognitive and affective skills. No statistically significant differences emerged between the two teaching groups in terms of cognitive and affective goals. Comparing the aggregate medians of the goals that pre- and primary school teachers chose for their learning materials, a statistically significant difference emerged in the metacognitive goals of the learning materials group. Namely, primary school teachers considered it more important than preschool teachers for good learning materials to help achieve goals aimed at developing children's metacognitive skills ( $p < 0.05$ ).

## **4.2. Pre- and primary school teachers' opinions on the principles for choosing learning materials**

### **4.2.1. Principles for choosing learning materials**

First, as part of Study III, the opinions of pre- and primary school teachers on the principles for choosing learning materials were examined. A total of 21 different principles were identified, which were divided into four groups: *compliance with the curriculum*, *diversity of content and tasks*, *clarity and comprehensibility of*

*content and tasks*, and *external factors*. Further details regarding the results are available in Article I. The distribution of principles is shown in Figure 3.



**Figure 3.** Teachers’ opinions on the principles for choosing learning materials

*Compliance with the curriculum.* It was found that the principles for selecting learning materials in pre- and primary school are based on their relevance to the curriculum. Teachers highlighted the age-appropriateness of learning materials, i.e., tasks and texts should be child-friendly in design, font size, and other formal features. Teachers considered it important that learning materials support the achievement of learning outcomes described in the curriculum and enable the integration of subjects. Another important principle for choosing learning materials was affordability, i.e., the correspondence of learning materials to children’s developmental level and abilities. Teachers pointed out that the difficulty level of learning materials should consider children’s knowledge level and the so-called average student. It was less often mentioned that learning materials could be playful, relevant to the topic, and methodical.

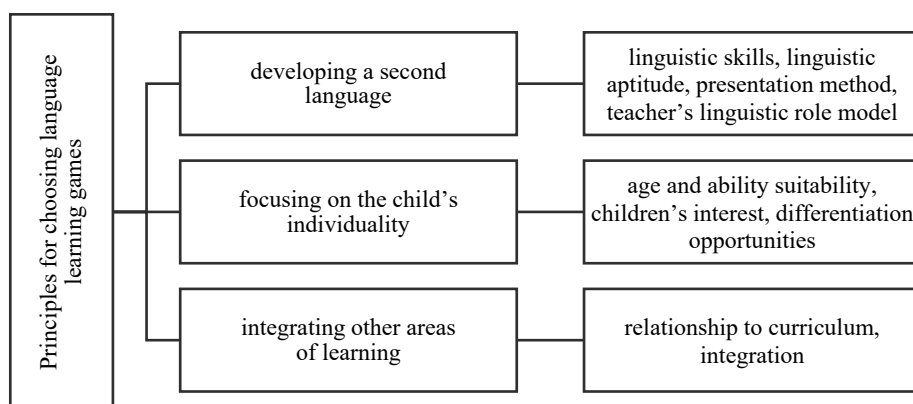
*Diversity of content and tasks.* Given the diversity of the content of the learning materials and the variety of tasks, the teachers pointed out that the texts, tasks, and exercises should be engaging and varied. It was important that the learning materials would allow the teacher to consider the children’s interests and their individuality. The learning materials are expected to include additional tasks at various levels for talented students and provide suitable opportunities for younger and less advanced learners. The least mentioned by the teachers was supporting the child’s creativity with the help of the learning materials, which would be expressed in the child’s opportunity to complete, decide, and do something themselves.

*Clarity and comprehensibility of content and tasks.* In terms of clarity and comprehensibility of the content and tasks, teachers considered it important to understand the content of the learning materials and the work instructions. Teachers highlighted the structure of the learning materials, noting that the topics follow each other logically and the structure is systematic, making the materials easier to use. The least mentioned by teachers were the illustrations and design of the learning materials.

*External factors.* Teachers appreciated the attractive appearance and design of the learning materials as external factors, i.e., they believed that learning materials should be visually appealing to children. Additional items for the learning materials were considered important, such as an e-textbook and a collection of tests and lesson checks. Teachers pointed out that if the learning materials are accompanied by introductory training, it makes it easier for them to choose. Previous user experience or colleague recommendations were also mentioned as principles for choosing learning materials. The price of the learning materials was only mentioned as a choice principle in the responses of a few teachers.

#### 4.2.2. Principles for choosing language learning games

Second, as part of Study II, the opinions of preschool teachers on the principles for choosing language learning games were examined. A total of nine different principles were named, which led to the formation of three themes: *developing a second language*, *focusing on the child's individuality*, and *integrating other areas of learning*. Article II provides a more detailed account of the findings. The themes and subthemes are outlined in Figure 4.



**Figure 4.** Preschool teachers' opinions on the principles for choosing language learning games.

*Developing a second language.* Teachers consider that language learning games should be able to develop all linguistic skills, particularly listening, responding, and communication opportunities and tasks aimed at self-expression. Teachers

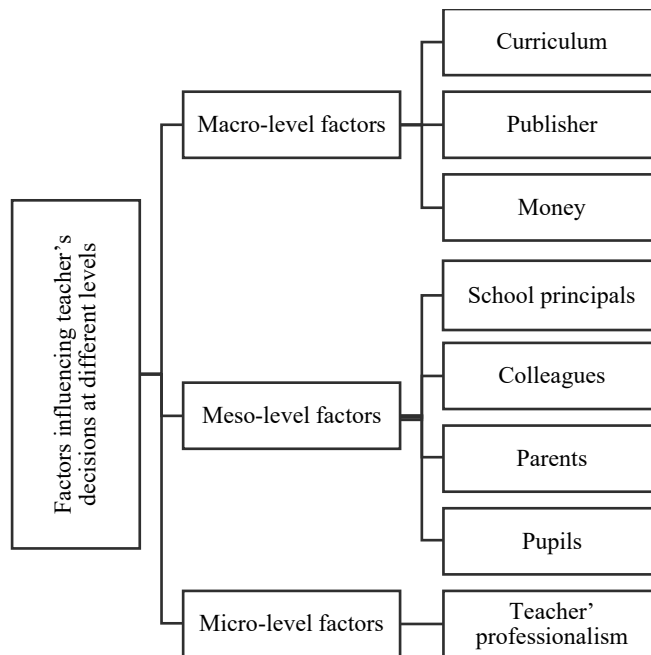
emphasised the development of children's vocabulary through games, and it was pointed out that a game specifically designed for learning a second language could be created. Teachers also pointed out that the material's presentation method was important for the game's instructions to be understandable and illustrative, for example, with various lifelike pictures. According to teachers, the picture material added to the language learning games helps children understand new words more easily. In the case of the teacher's linguistic example, the teacher's speech was mentioned because children acquire a foreign language by listening to others speak.

*Focusing on the child's individuality.* In terms of the child's individuality, teachers emphasised that the language skills of children learning a second language are different; therefore, the child's individuality should be considered. Teachers mentioned choosing games based on the child's development and ability to learn the Estonian language. It was important to consider age and affordability, as materials suitable for language learning should align with the children's abilities and interests. At the same time, teachers emphasised the possibility of changing the materials based on the child's language level. A language learning game should be child-friendly and engaging, especially with visual materials or the opportunity to move around. In terms of child-centred learning, the possibility of differentiating the games was mentioned, meaning that making the game easier or more difficult, and that the game could be used both as an individual activity or with a whole group.

*Integrating other areas of learning.* Regarding the integration of other areas of learning, teachers' responses were related to the preschool curriculum and its approach to learning. Teachers mentioned that games should be related to the goals of the curriculum, not only those related to language learning, but also the materials should be integrated into other areas of learning and educational activities. When choosing a language learning game, it was important for teachers that the game would facilitate a connection between learning a second language and the topics being addressed in the group. In addition, teachers found that the learning materials could be related to children's daily activities, allowing the child to communicate in the language being learned.

### **4.3. Teachers' opinions on factors influencing the choice of learning materials**

**Study III** aimed to identify the factors that influence preschool and primary school teachers' choice of learning materials at the macro-, meso-, and micro-levels. The interpretation of the findings should consider that they reflect the opinions of a limited sample of 19 teachers; consequently, the results cannot be generalised to all teachers in Estonia. Analysing teachers' responses, they show that eight factors influence their choice of learning materials. The results can be seen in Figure 5. More detailed results are presented in Article III.



**Figure 5.** Factors that influence teachers' choices of learning materials at different levels

*At the macro-level*, findings showed that the curriculum, the publisher, and finance influenced teachers' decisions when choosing learning materials. The consistency of the learning materials with the curriculum was the most frequently named influencing factor. Materials were selected with the subject matter in mind, and they had to support the achievement of the goals set by the curriculum. The publisher was a crucial factor affecting the choice of learning materials. Supplementary materials issued by publishers, such as methodological guides for teachers, sets of tests, and worksheets with learning materials, have a significant influence on teachers' choices of materials. A digital version of learning materials was considered essential. The last factor that influences teachers' choices at the macro-level is money, which was allocated to this level during the analysis, because, in the teachers' opinion, it is given to educational institutions by the state or local government. Most teachers mentioned that money does not affect their decisions. However, some of them pointed out that it can create certain boundaries (e.g., if you do not order workbooks, you will have the money to buy something else).

*On a meso-level*, teachers highlighted four factors as influential: school principals, colleagues, parents, and pupils. School principals primarily supported teachers in their choice of learning materials. Most teachers viewed colleagues' opinions about the choice of learning materials as valuable. These opinions influenced their choice of materials in many ways (e.g., learning materials are often selected on a grade-by-grade basis, where all teachers teaching pupils in the same grade use similar learning materials). Most teachers were not influenced by

parents' opinions when choosing learning materials. Preschool teachers believed that parents have confidence in their decisions and trust their children to achieve school readiness with the help of the chosen learning materials. Teachers are aware of pupils' individual needs at different levels, so they assume these needs are considered when compiling learning materials. Teachers expect learning materials to correspond to pupils' ages and be sufficiently diversified.

*At the micro-level*, in the opinion of the responding teachers, a factor that influenced the choice of learning materials was the teacher's professionalism. Teachers indicated that their decisions depended on their previous experience or the suitability of the materials to their teaching styles. Preliminary work (e.g., surfing the internet and visiting bookshops and publishers to become acquainted with materials in advance) plays a vital role in the selection process. Most teachers reported that during their teacher education, they were not taught how to choose learning materials, although some gained knowledge on how to compile worksheets.

## 5. DISCUSSION

This doctoral thesis aims to determine the opinions of pre- and primary school teachers on aspects related to the choice of didactical learning materials. The following discussion focuses on the main findings of the study and is structured into three thematic sections based on five research questions. The first section, which consists of two parts, provides an overview of pre- and primary school teachers' opportunities in choosing learning materials and the goals they set for these materials. The second section, structured in two parts, explores teachers' opinions on the principles for selecting learning materials and language learning games. The third section examines factors influencing teachers' choices of learning materials. Finally, the limitations and strengths of the doctoral thesis are highlighted.

### 5.1. Teachers' opportunities and goals in choosing learning materials

#### 5.1.1. Opportunities to choose learning materials

In response to the first research question, the study investigated pre- and primary school teachers' opportunities to choose learning materials. Results show that preschool teachers perceive themselves as having the opportunity to choose learning materials. This finding is consistent with earlier research, which has shown that Estonian preschool teachers have autonomy in decision-making within their groups (Tuul *et al.*, 2015). A possible explanation for why preschool teachers believe that they can choose the learning materials is the diversity of materials used in preschool. While primary schools often use textbooks that are intended for use over several years, preschools tend to use games, workbooks, and worksheets. This allows each preschool teacher to make an individual decision about which learning materials to use in their group. Previous studies have found that learning in preschool is characterised by excessive use of textbooks and workbooks (Ackesjö & Persson, 2019; Markowitz & Ansari, 2020; Murphy, 2022; Patton & Winter, 2022). Although the current study did not specifically examine which learning materials teachers use, the perceived freedom preschool teachers have in choosing materials raises important questions about teacher professionalism. In cases where the teacher has unlimited freedom, their awareness of the quality of the learning materials and their suitability for the children's age should be correspondingly greater. Therefore, the freedom to choose learning materials places a responsibility on the teacher to ensure that learning remains age-appropriate, i.e., playful in preschool. This raises the question of whether teachers always desire complete freedom or prefer guidelines to direct their selections. Previous research highlights this nuance: while teachers value autonomy, they sometimes prefer to make decisions within certain limits (Tuul *et al.*, 2015).

In contrast, primary school teachers noted that their opportunities to select learning materials are limited. This finding is somewhat unexpected, as previous studies on basic school teachers (Erss *et al.*, 2016; Taimalu *et al.*, 2019) indicate that Estonian teachers have the autonomy to select learning materials. A comparable situation has been identified in international contexts, where legislation formally grants teachers decision-making authority, yet various contextual factors hinder the actual exercise of that autonomy (Lalau, 2014; Reichenberg & Andreassen, 2017). Based on the findings of this study, one reason might be that since learning materials in primary schools are selected over several years, decisions regarding their continued suitability should be made in consultation with colleagues. Although a teacher cannot choose learning materials alone, collaborative selection certainly has advantages, for example, it allows teachers to share their personal experiences and thereby make the learning materials selection process more meaningful. Another possible reason why primary school teachers perceive that their choices are limited is the school's financial capacity. Since a relatively large number of materials are published by different providers, schools cannot afford to purchase all of them. While complete freedom in choosing learning materials is not available to all primary school teachers, many still have the opportunity to contribute to the selection process.

### 5.1.2. Goals to be fulfilled by learning materials

Next, addressing the second research question, the study examined pre- and primary school teachers' opinions on the goals that learning materials should fulfil. Findings indicated that cognitive and affective goals were considered important by both pre- and primary school teachers. This result aligns with expectations, as these skills form the basis for successful learning. However, previous research has shown that many existing learning materials lack sufficient tasks to promote cognitive development and emotional engagement (Barcelos Amaral & Hollebrands, 2017; Glasnovic Gracin, 2018). Although teachers value cognitive and affective goals, the lack of corresponding exercises in available materials raises the question of how this gap can be addressed. The findings of this study suggest that teachers not only recognise the significance of these aims but also express a clear need for well-designed materials to support them. This underscores the need for materials that foster children's overall development – stimulating thinking, curiosity, emotional expression, and a sense of belonging. High-quality materials should provide both an intellectual challenge and emotional engagement to effectively nurture children's growth (Reints & Wilkens, 2019; Tomlinson & Masuhara, 2017). Therefore, it is essential to develop materials that balance these aspects in order to effectively support children's learning and development.

As a result of the present study, primary school teachers considered goals that support the development of children's metacognitive skills to be more important than those of preschool teachers. Metacognitive goals emerge by developing a child's ability to reflect on their learning, to make independent choices, and apply strategies. In this way, learning materials could support the development of early

self-regulation and learning-to-learn skills. This perceived difference between teachers may be explained by the fact that preschools work with children of different ages, and preschool teachers might consider children too young for tasks that target higher-order thinking. Although age is a key factor in assessing of metacognitive processes by Nieto-Márquez (Lara Nieto-Márquez *et al.*, 2020), whose study focused specifically on primary school children, it is possible to address metacognitive skills in an age-appropriate manner at the preschool level, where learning materials can play a supportive role. Previous findings suggest that well-designed tasks in learning materials can encourage preschool children to consider the purpose of learning (Zahan & Begum, 2013) and gradually assume partial responsibility for it (Panzai & Channa, 2017). Supporting the development of metacognitive awareness from an early age can help children not only regulate their learning behaviour but also build a sense of ownership and confidence as learners. When learning materials provide opportunities for children to predict, monitor, and evaluate their thinking – even in simple forms – they lay the foundation for long-term academic resilience and motivation. Therefore, preschool teachers could consider how to nurture metacognitive thinking in age-appropriate ways, and well-designed materials could support this by offering structured guidance.

## **5.2. Principles teachers consider important when choosing learning materials**

### **5.2.1. Principles for choosing learning materials**

Responding to the third research question, the study examined teachers' opinions on the principles of choosing learning materials. The current study suggests that teachers consider alignment with the curriculum an important principle when selecting learning materials. Previous studies have emphasised the role of curriculum-based selection of learning materials (Christensen *et al.*, 2023; Thobela *et al.*, 2023). The reason teachers place importance on the coherence between learning materials and the curriculum is that they base their teaching on the curriculum, leading them to expect materials that effectively support its implementation. Teachers may think that having materials aligned with the curriculum provides clear guidance and structure, making lesson planning more efficient and ensuring that all required learning objectives are covered. Moreover, the emphasis on curriculum-aligned materials found in this study may be explained by the recognised role such materials play in helping teachers design learning activities that promote children's competence and basic skills. Additionally, these materials support maintaining an enjoyable and playful learning environment, as highlighted by previous research (Iversen, 2014; Samuelsson & Carlsson, 2008). Another possible reason why teachers consider the curriculum important is that teachers face significant time constraints and workload pressures. In this context,

curriculum-based learning materials serve as practical tools that save preparation time and reduce the need for extensive adaptation or supplementary materials.

According to the present study, teachers emphasised that learning materials should support the individual needs and developmental levels of learners. This finding aligns with previous studies, which have found that teachers are most influenced by the children in their group or class and their specific needs when choosing learning materials (Griffith *et al.*, 2013; Kolbeck & Röhl, 2018). When materials are too easy or too difficult, children may disengage or feel frustrated, which can have a negative impact on their self-confidence and affect their learning outcomes. High-quality learning materials that allow for flexibility and differentiation enable teachers to respond effectively to this diversity in the classroom. The teachers participating in this study highlighted the importance of addressing individual differences, noting that this is particularly critical in pre- and primary education, where students' developmental levels can vary significantly. Teachers' thorough understanding of the children provides them with the opportunity to adapt learning materials according to each child's developmental level. The study revealed that only a few pre- and primary school teachers considered playfulness an important principle when selecting learning materials. It has been recognised in earlier studies that preschool learning materials can at times be excessively school-like, characterised by an overdependence on textbooks and workbooks (Ackesjö & Persson, 2019; Markowitz & Ansari, 2020). However, precise data on this issue in primary schools is lacking.

There may be several explanations for why teachers did not highlight playfulness. One explanation could be that teachers who participated in the present study were asked more specifically about textbooks and workbooks, which they see mainly as school materials. Thus, they didn't consider the possibility of a playful approach. However, a modern textbook or workbook can contain tasks that allow children to learn playfully and actively (Merritt *et al.*, 2017; Vitiello *et al.*, 2018). Another explanation is that some primary school teachers may associate play primarily with early childhood education and view formal schooling as a phase where learning becomes more structured and goal-driven. According to Hirsh-Pasek and Golinkoff (2008), this perception may lead to an implicit separation between "real learning" and play, despite growing evidence that playful learning approaches can enhance engagement, motivation, and deep understanding even in the early years of formal schooling. As such, the underrepresentation of playfulness in teachers' responses may reflect broader educational beliefs and systemic expectations, rather than a rejection of playful pedagogy itself.

### 5.2.2. Principles for choosing language learning games

The study addressed the fourth research question by examining preschool teachers' opinions on the principles of choosing language learning games. Teachers mentioned that games should help develop a child's second language skills. They emphasised the importance of adapting language learning games based on the child's language level. This has been previously highlighted as a significant

concern; learning materials should be adaptable to children's individual language proficiency levels (Argus *et al.*, 2021; Fleta Guillén, 2018; Schwartz, 2020). In the present study, teachers raised this issue because children learning a second language in preschool often have highly diverse linguistic backgrounds. Some have already been exposed to the language at home or in early learning environments, while others may be encountering it for the first time. Without proper alignment between a child's language competence and the game's difficulty, learning activities may feel overwhelming or meaningless, ultimately decreasing the child's motivation to engage. Language learning games, when well designed, allow teachers to adjust content and complexity in developmentally appropriate ways (Griva & Semoglou, 2012; Meriläinen & Piispanen, 2022). Therefore, it can be said that from the teacher's perspective, adaptable language learning games are not only pedagogically beneficial but a practical necessity for meeting the communicative and developmental needs of diverse learners.

Teachers emphasised that language learning games should integrate different areas of learning to support the development of a child's knowledge in other subject areas. This finding contrasts with previous studies, which have primarily emphasised language learning and the development of communicative competence (Goullier *et al.*, 2015; Weisberg *et al.*, 2013). One possible explanation for the emphasis on integration in this study is the ongoing transition to Estonian-language education, where all children are required to begin their education in Estonian. As a result, teachers must ensure that language learning occurs through everyday instruction and activities. Estonia initiated this transition in 2024, and from September 1st, all teaching and educational activities in preschool groups were required to be conducted in Estonian (Ministry of Education, s.a.). Another possible reason for the emphasis on integration is that teaching in Estonian preschools, and to some extent in primary schools, is not organised by separate subjects but is integrated. This highlights the need for language learning materials that are not isolated from other subjects, such as mathematics or science, but instead support integrated learning. Such materials enable children to acquire language naturally through meaningful, everyday experiences.

In the present study, teachers did not mention introducing different cultures as a principle for choosing language learning games. Considering Estonia's ongoing transition to a fully Estonian-language education system, this omission is somewhat surprising. Previous research has highlighted that learning materials should present a positive view of minority groups (Panzai & Channa, 2017) and support the development of children's cultural awareness through content (Lopez-Medina, 2016). One possible explanation for why teachers did not mention cultural awareness is that they are currently focused primarily on supporting children's language acquisition and their integration into the Estonian-language learning environment. This urgent priority may result in reduced attention to intercultural dimensions in the selection of learning materials, as educators prioritise language proficiency. Additionally, cultural aspects may be perceived as more appropriately addressed through pedagogical practices, daily interactions, or contextual activities, rather than through the content of specific learning

games. This interpretation aligns with the Estonian National Curriculum for Early Childhood Education (2025), which emphasises both the importance of Estonian language acquisition and the need to value children's cultural and linguistic backgrounds. While the curriculum mandates the use of Estonian in all instruction, it highlights that children's cultural identities need to be respected and supported.

### **5.3. Factors influencing teachers' choice of learning materials**

Finally, addressing the fifth research question, the study identified the factors that influence pre- and primary school teachers' choice of learning materials at the macro-, meso-, and micro-levels. Interestingly, at the macro-level, the publisher was the factor that revealed the most notable difference between the options of pre- and primary school teachers. While primary school teachers tend to trust publishers and choose materials based on their recommendations, preschool teachers do not share the same opinion. Preschool teachers, facing a less prescriptive and more flexible curriculum, prefer to modify existing materials or create their own to meet children's individual developmental needs better (Christensen *et al.*, 2023; Stará *et al.*, 2017). A contributing factor to preschool teachers' mistrust of publishers might be their closer daily involvement with children's developmental needs, which leads to a more critical approach towards materials that may not fully align with the play-based nature of early childhood education. Additionally, preschool teachers may feel that publishers prioritise standardised content suitable for formal schooling, which might not adequately reflect the flexibility required in early childhood settings. Conversely, primary school teachers might rely more on publishers due to a more detailed curriculum framework and standardised assessment requirements, which make publisher-endorsed materials appear more reliable and easier to justify in their teaching practice.

Primary school teachers stated that colleagues are the main influence on the choice of learning materials at the meso-level, and the selection is typically made collectively. Previous studies show that teachers are particularly influenced by the opinions of colleagues (Bjursten *et al.*, 2024; Griffith *et al.*, 2013; Noni, 2016; Reichenberg, 2014). A possible explanation for why primary school teachers are mainly influenced by colleagues could be that schools do not purchase new materials every year, but rather select them for use over several years. Collective decisions may provide valuable support for less experienced teachers, who benefit from the expertise and guidance of their more seasoned colleagues, thereby increasing their confidence in using the selected materials. Similarly, the previous research has found that beginner teachers value the advice of experienced colleagues when selecting learning materials (Garcia, 2014). In contrast, more experienced teachers tend to prefer making choices independently (Vojříř & Rusek, 2021). This collective approach may lead to compromises that do not fully satisfy every individual teacher's preferences, potentially limiting innovation and

slowing down the use of new or experimental materials – a concern that emerged in the responses from the participants.

The difference from previous studies was evident in the role of parents as an influencing factor at the meso-level when teachers select learning materials. While it has previously been found that teachers may decide on the choice of learning materials based on the wishes and sometimes even demands of parents (Fung & Cheng, 2012; Karabon, 2021; Lynch, 2015), this study did not reveal such a result. Instead, teachers in this study emphasised that parents generally trust their professional judgment and recognise teachers as experts in their field. In Estonia, the professional development of teachers is strongly emphasised, ensuring that teachers' knowledge and skills meet current professional standards. The Occupational Qualifications Standard (2025) explicitly states that pre- and primary school teachers are responsible for selecting appropriate learning materials. In addition, teachers in Estonia are required to have a higher education (a bachelor's degree for preschool teachers and a master's degree for primary school teachers). This professional background likely increases parents' trust and their willingness to rely on teachers' decisions regarding learning materials.

At the micro-level, the professionalism of teachers plays a decisive role in the choice of learning materials. Teachers said that preliminary work and experience gained over time were the most helpful factors in selecting learning materials. These results correspond with findings from previous studies, which have revealed that the selection of appropriate learning materials improves with work experience (Griffith *et al.*, 2013; Karabon, 2021; Mukundan, 2022). The teachers who participated in the present study indicated that they had not acquired knowledge about selecting learning materials during their teacher education. This might be related to the age of the teachers, as although both Estonian universities currently offer at least one course on selecting learning materials (Tallinn University, 2024; University of Tartu, 2024), this may not have been the case in the past. At the same time, previous research has found that teachers do not always apply the knowledge gained from their formal education in practice (Fougat *et al.*, 2020). This may explain why teachers in this study indicated that they had not gained practical knowledge about selecting teaching materials from their teacher education. However, in this study, teachers emphasised that professional development through work experience, rather than formal education, was more influential in helping them choose appropriate learning materials.

#### **5.4. Limitations and strengths of the research**

The research described in this doctoral thesis encountered some limitations related to the study methodology. Firstly, although questionnaires and reminders were sent to many pre-and primary schools, the number of respondents to the questionnaire remained low. The reason might be that the teachers participating in the study had to meet the particular criteria (for example, Article II, only those teachers with experience teaching children from another cultural background).

Secondly, since the study aimed to find out teachers' opinions, it is important to consider the potential influence of social desirability bias. Respondents may have provided answers they perceived as socially acceptable or aligned with what they believed the researcher expected, rather than fully disclosing their genuine beliefs or attitudes. Thirdly, the concept of learning materials is much broader than what was asked in the questionnaire, which narrowed it down to textbooks and workbooks in one case and language learning games in another. In the future, it would be worthwhile to explore more broadly what teachers themselves mean by 'learning materials'. Fourthly, as teachers were asked in Study II only to name three important principles when choosing learning materials and language learning games, this may have limited the response of some teachers who might have wanted to highlight more principles.

Despite these limitations, this doctoral thesis has strengths that can be helpful when planning studies in similar areas, such as teachers' opinions on choosing learning materials. The most significant value of the study is that it is the first doctoral thesis that examines the opinions of Estonian teachers about the choice of learning materials. In addition, not enough attention has been paid to learning materials for pre- and primary schools in Estonia and internationally. However, since this level of education lays the foundation for children's future learning, the learning materials need to be of high quality. Therefore, this study can be used as a starting point for further studies of this level of education (as well as subsequent ones). In addition, some of the study's methodological strengths can be highlighted. The research sample was selected based on criteria (e.g., in the case of Study II, teachers with experience in teaching Estonian as a second language). It was carefully considered to ensure that the sample was as diverse as possible and would support all stages of the study. Another strength of the work is its methodological diversity, as qualitative and quantitative research methods were used. To understand teachers' opinions about the factors that influence the choice of learning materials, interviews were justified because they provided a diverse understanding of teachers' thoughts.

## 6. CONCLUSIONS AND IMPLICATIONS

### 6.1. Conclusions

Teachers' opportunities to choose learning materials are influenced by their professionalism, experience, and knowledge, but these decisions can be complex and affected by external factors such as parental expectations and colleagues' input (Christensen *et al.*, 2023; Karabon, 2021). The amount of learning materials is large, so teachers need to be aware of which materials are most suitable for their teaching. However, teachers do not always know the quality criteria for learning materials (Christensen *et al.*, 2023; Iversen, 2014). To address the limited knowledge about how pre- and primary school teachers choose learning materials, the doctoral thesis analysed the opinions of pre- and primary school teachers on aspects related to the choice of didactical learning materials.

Study I examined the opportunities pre- and primary school teachers have to decide which learning materials to choose, as well as their opinions on the goals that such materials fulfil. A clear contrast emerged between the two groups: while preschool teachers have the autonomy to choose materials, primary school teachers have fewer opportunities. This limitation appears to be closely linked to the specificity of curriculum requirements and the presence of external assessments of learning outcomes, both of which tend to restrict teachers' flexibility in choosing learning materials.

Study I also revealed that both pre- and primary school teachers consider cognitive and affective goals essential when choosing learning materials. Primary school teachers place greater emphasis on metacognitive goals, aimed to encourage self-regulated learning and reflective thinking, whereas preschool teachers tend to be more cautious, likely due to the children's developmental considerations. This suggests that preschool education places a stronger focus on developing social and emotional competencies. The promotion of higher-order skills such as metacognition seems more appropriate in primary education, where children are developmentally better prepared for self-regulated learning and reflective thinking.

Study II revealed that teachers prioritise several principles when choosing learning materials, including curricular alignment, diversity, and clarity of content and tasks. Playfulness is often given limited emphasis, likely due to the focus on more formal materials, such as textbooks and workbooks. The tendency may reflect the increasing pressure on teachers to meet standardised curricular goals and assessment requirements, which often prioritise measurable learning outcomes over more exploratory or playful approaches. It is essential to give greater attention to incorporating playful learning strategies across different educational levels. Teachers stressed the importance of integrating second language development with broader educational activities in language learning games, reflecting Estonia's shift to Estonian-language instruction. Interestingly, the role of multicultural content in learning materials was not mentioned, suggesting a potential

area for further development in the context of Estonia's evolving educational landscape.

Study III indicated that Estonian teachers' decisions regarding the choice of learning materials are influenced by factors operating at multiple ecological levels, as explained by Bronfenbrenner's model. Alignment with the curriculum, along with publishers' offerings and financial constraints, primarily guides choices at the macro-level. At the meso-level, principals and colleagues play a supportive role, fostering collaboration. Finally, it is teachers' professionalism, operating at the micro-level, that significantly directs materials choice. Overall, practical teaching experience was deemed more influential than teacher education in developing the competence to choose appropriate materials. The multifaceted nature of decision-making in educational institutions and the need for comprehensive support systems to enhance teachers' learning materials selection processes.

To sum up, teachers' choices are shaped not only by their professional experience and knowledge, but also by a range of external and contextual factors, including curricular demands, institutional expectations, and available materials. These factors are particularly relevant now that there is a growing academic emphasis on preschool education and the need to ensure a smooth transition between educational levels. Ensuring continuity in both the design and content of learning materials supports the transition from the play-oriented approach of preschool education to the more academic focus of primary school. Greater attention should be given to developing supportive frameworks that help teachers choose materials that foster continuity, support child development, and reduce the risk of premature schoolification. In the context of Estonia's shift to Estonian-language education, which requires teaching all subjects in Estonian from early grades, these considerations gain particular significance. In this context, playful language learning is vital, not only in language skill development, but also in helping children adapt socially and educationally. Supporting teachers in selecting developmentally appropriate, linguistically accessible, and engaging learning materials is therefore essential to ensure learning opportunities and successful transitions for all children.

## **6.2. Implications and recommendations**

Based on this study, some recommendations could be useful for teacher educators, researchers, those responsible for teacher education, and educational policy-makers. The implications and recommendations from this study are valuable for teachers facing the daily choice of learning materials.

On the theoretical and methodological level, the following recommendations, drawn from the results, are offered:

1. This doctoral thesis employed a mixed-methods approach, using both interviews and questionnaires to enable qualitative and quantitative data analysis. The questionnaire collected opinions from a large number of teachers on the

goals and principles of choosing learning materials, while the interviews were used to gain in-depth insights into the teachers' perspectives on the selection of learning materials. Therefore, to obtain a more comprehensive understanding of teachers' opinions, it is advisable to combine different research methods when necessary and to explore various aspects of the phenomenon, such as the factors influencing the choice of learning materials.

2. The factors influencing teachers' choice of learning materials have been identified, and based on these, further research can be planned. For example, to clarify the extent of the influence of different parties (e.g., principals, parents, pupils) and how this can be best utilised. The distribution of factors influencing the choice of learning materials on the model adapted from Bronfenbrenner is appropriate and suitable for conducting similar future studies.
3. This doctoral thesis has shown that teachers' opinions on choosing learning materials are diverse. The results obtained are of help in reviewing both pre- and primary school curricula, professional standards, and regulations that guide the issuance of learning materials. Teachers identified several important principles for choosing learning materials, which can be used when analysing and developing learning materials.

On the practical level, recommendations for teacher educators and university programme developers can be made:

1. Additional competencies in choosing learning materials should be developed through teacher education, as the professional standard requires teachers to be able to select, create, and adapt appropriate materials independently. Given the insights into the principles and goals teachers prioritise when choosing learning materials, teacher education programmes need to engage with these aspects explicitly. Based on the findings of this doctoral thesis, two key areas are addressed in teacher education:
  - (1) The need to find suitable learning materials is particularly evident now that Estonia is transitioning to Estonian-language teaching. Teachers have been taught how to prepare learning materials, including didactic games, based on a specific goal for a specific field, but this has not been done with sufficient systematicity. It would be worth considering how to integrate the topic of learning materials more visibly into teacher education.
  - (2) There is a clear need for practical handbooks or guidelines that help teachers select, adapt, and create developmentally appropriate and linguistically accessible learning materials, especially for use in multilingual and multicultural classrooms. Such materials help bridge the gap between theoretical training and classroom practice, particularly during the ongoing language transition.

2. To develop teacher education effectively, in-service training is crucial, serving the needs of teachers, school leaders, and learning materials creators. Teachers should be helped in developing their skills when selecting and creating learning materials. For school leaders, raising awareness about the factors influencing teachers' choices of learning materials is important. Learning materials creators (in addition to scientific research) introduced to teacher' expectations, what goals and principles they believe good learning materials meet, and emphasised that the age of the learning group is considered.
3. The primary school teachers' autonomy of decision and opportunities to choose learning materials were more limited than those of preschool teachers. Therefore, school leaders must involve teachers as experts in their subject area when selecting learning materials.

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# APPENDICES

## Appendix 1. Questionnaire used in Studies I and II (part I).

1. Kuivõrd on Teil võimalik otsustada, millist õppevara kasutada eesti keele ja/või matemaatika õpetamisel? Kui Teil ei ole võimalik ise õppevara üle otsustada, siis jätkake palun vastamist alates küsimusest nr 5.
  - Ei saa ise otsustada ja valikul kaasa rääkida
  - Saan natuke otsustada ja valikul kaasa rääkida
  - Saan täielikult ise otsustada ja valida
2. Nimetage KOLM põhimõtet, millest Teie lähtute varem avaldatud eesti keele ja/või matemaatika õppevara valikul.
3. Palun märkige järgnevas loetelus ristikesega, milliseid eesmärke peaks täitma hea kvaliteediga õppevara. Valige loeteludest ainult need valikud ja märkige ristikesega, mida peate õppevara puhul oluliseks. Vajadusel lisage lõppu oma kommentaar.
  - Harjutada meelepidamist
  - Süstematiseerida teadmisi
  - Rakendada teadmisi
  - Arendada analüüsioskust
  - Arendada probleemilahendamise oskust
  - Kujundada teemast arusaamist
  - Toetada iseseisvust
  - Toetada laste ettevõtlikust
  - Õpetada esitama oma arvamust
  - Kujundada esinemisoskust
  - Toetada sobilike käitumisharjumuste teket
  - Toetada õpimotivatsiooni
  - Teadvustada õppimise eesmärke
  - Jälgida oma tegevust õppimisel
  - Suunata õpilasi hindama oma õppimise tõhusust
  - Suunata õpilasi analüüsima oma õppimist
  - Suunata õpilasi keskenduma õppimisele
  - Aidata õpilasel oma aega planeerida
  - arvestada õppija huve
  - saada eduelamust

### Taustaandmed

- Sugu (mees/naine)
- Teie vanus (täisaastates)
- Teie töökogemus õpetajana (täisaastates)
- Palun kirjutage, millises maakonnas asub kool, kus Te praegu töötate.
- Palun märkige kooli suurus – õpilaste arv Teie koolis.
- Palun märkige õpilaste arv selles klassis, kus Te praegu klassiõpetaja olete.

## Appendix 2. Questionnaire used in Study II (part II).

1. Nimetage KOLM põhimõtet, millest Teie lähtute eesti keele kui teise keele õppeks mängude valikul.
2. Palun hinnake 5-pallisel skaalal, kui võrd oluliseks Te peate eesti keele kui teise keele õpetamisel kasutatavate mängude puhul järgmisi kriteeriume. Vajadusel lisage nimekirja lõppu kommentaar. Skaala väärtused on järgmised: 1 – mitte üldse oluline ..... 5 – väga oluline.  
Hea õppevara sisaldab ...
  - Selgelt sõnastatud reegleid
  - Praktilisi harjutusi/ülesandeid
  - Võimalust teemat korrata ja harjutada
  - Võimalust lahendada ülesandeid koos kaaslasega
  - Võimalus lahendada probleeme sisesisvalt
  - Arusaadavalt sõnastatud õpijuhiseid
  - Teemakohaseid näiteid
  - Tõetruid illustratsioone
  - Mänge, mis võimaldavad toetada vähemvõimekaid lapsi
  - Mänge, mis toetavad andekaid lapsi
  - Muid kriteeriume
3. Hea eesti keele kui teise keele omandamist toetav mäng...
  - soodustab laste omavahelist suhtlust ja koostööd
  - kujundab laste väärtushinnanguid
  - võimaldab lastel lahendada iseseisvalt ülesandeid
  - võimaldab teha lastel rühmatööd
  - võimaldab kontrollida omandatud sõnavara
  - ülesehitus on selge ja arusaadav
  - reegleid tutvustatakse mängu alguses
  - mängu juhiste lausete pikkus vastab laste lugemisoskusele
  - juhised ja sisu on arusaadavad
4. Palun märkige järgnevas loetelus ristikesega, milliseid eesmärke peaks täitma hea kvaliteediga eesti keele kui teise keele omandamist toetavad mängud. Valige loeteludest ainult need valikud ja märkige ristikesega, mida peate mängude puhul oluliseks. Vajadusel lisage lõppu oma kommentaar.
  - Harjutada meelepidamist
  - Süstematiseerida teadmisi
  - Rakendada teadmisi
  - Arendada analüüsioskust
  - Arendada probleemilahendamise oskust
  - Kujundada teemast arusaamist
  - Toetada iseseisvust
  - Toetada laste ettevõtlikust
  - Õpetada esitama oma arvamust
  - Kujundada esinemisoskust
  - Toetada sobilike käitumisharjumuste teket
  - Toetada õpimotivatsiooni

- Teadvustada õppimise eesmärke
- Jälgida oma tegevust õppimisel
- Suunata lapsi keskenduma mängule
- Aidata lastel oma aega planeerida
- Arvestada laste huve
- Saada eduelamus
- Omandada sõnavara
- Kujundada väljendusoskust
- Tutvuda eesti kultuuriga

#### Taustaandmed

- Teie vanus (täisaastates)
- Teie töökogemus õpetajana (täisaastates)

### **Appendix 3. Interview plan used in Study III.**

At the beginning of the interview, the purpose of the research was introduced, permission was obtained to record the interview, and it was agreed that the transcribed interview would be sent to the teacher for review and, if necessary, supplemented. As an introduction, two questions were asked in order to coordinate the interviewer's and interviewee's understanding of the concept of learning material: *How do you define learning material? Please name the learning materials you use.* The interview consisted of open-ended questions, additional questions were asked after each open-ended question, and the interviewees were asked to explain and justify their answers.

1. To what extent can you choose learning materials?
2. Should a teacher be able to choose learning materials?
3. What knowledge did you gain about learning materials during your teacher education?
4. How has what you learned at the university or training courses helped you choose learning materials?
5. What principles do you follow when choosing learning materials?
6. If you feel that you lack the knowledge or experience to choose learning material, where do you look for help?
7. How much is your choice of learning materials influenced by the children in the class/group that you teach?
8. How do parents influence your decisions about the choice of learning materials?
9. How do colleagues influence your decisions about the choice of learning materials?
10. How does the principal influence your decisions to choose certain learning materials?
11. How do you take national documents into account when choosing learning materials? What are the documents that influence your decisions regarding the choice of learning materials?
12. To what extent do you follow the national curriculum when choosing learning materials?

## SUMMARY IN ESTONIAN

### Õpetajate arvamused õppevara valimisega seotud aspektidest

Sotsiokultuurilise käsitluse järgi on õppimise protsessis oluline roll kultuuril, sotsiaalsel keskkonnal ja interaktsioonil (Vygotsky, 1978). Õpetaja ülesanne on aidata õppijal võtta omaks ja kasutada kultuurilisi tööriistu, viies nende kaudu ellu õppekavas esitatud sisu (Hennig & Kirova, 2012). Üks võimalusi, kuidas pedagoogilist otsustusprotsessi uurida, on kasutada Bronfenbrenneri (1979) ökoloogilist mudelit, mis pakub mitmetasandilise raamistiku õpetaja otsuseid mõjutavate tegurite, sealhulgas õppevara valiku välja selgitamiseks.

Sarnastest põhimõtetest, eesmärkidest ja arusaamadest lähtumine õppevara koostamisel ja valikul võib toetada üleminekut lasteaiast esimesse kooliastmesse (Onyango, 2014). Järjepidevus hariduskeskkonnas ja õpetamispraktikates toetab laste emotsionaalset turvalisust ja positiivset minapilti õppijana (Rimm-Kaufman & Pianta, 2000). Lisaks võib õppevara olla sillaks lasteaiast mängupõhisemate meetodite ja esimese kooliastme formaalsete õppestruktuuride vahel, suurendades sujuvat üleminekut (Ackesjö & Persson, 2019). Kui õppevara on erinevatel haridusastmetel teadlikult valitud, võib see soodustada ka õpetajate koostööd, muutes ülemineku sidusamaks (Broström, 2017). Seetõttu on oluline mõista õpetajate vaatenurki õppevara valimisest nii lasteaias kui ka esimeses kooliastmes.

Eesti õpetajatel ja koolidel on õppevara kasutamisel otsustus- ja valikuautooomia (Haridus- ja Teadusministeerium, *s. a.*). Ka varasemad uuringud on näidanud, et Eestis on nii lasteaiast õpetajatel (Tuul *et al.*, 2015) kui ka põhikooli õpetajatel (Erss *et al.*, 2016; Taimalu *et al.*, 2019) õppevara valikul vabadus. Põhikooli esimese kooliastme õpetajate võimalusi ise õppevara valida Eestis uuritud ei ole. Doktoritöö eesmärk oli välja selgitada lasteaiast ja esimese kooliastme õpetajate arvamused õppevara valikuga seotud aspektidest. Eesmärgist lähtuvalt püstitati viis uurimisküsimust.

1. Kuivõrd on lasteaiast- ja esimese kooliastme õpetajatel võimalus otsustada õppevara valikul?
2. Milliseid eesmärke peaks õppevara lasteaiast- ja esimese kooliastme õpetajate arvates täitma?
3. Millistest põhimõtetest lähtuvad õpetajad õppevara valimisel?
4. Milliseid põhimõtteid järgivad lasteaiast õpetajad eesti keele kui teise keele õpetamiseks mõeldud keeleõppemängude valimisel?
5. Mis mõjutab lasteaiast- ja esimese kooliastme õpetajate arvates nende õppevara valikut makro-, meso- ja mikrotasandil?

Uurimisküsimuste vastused esitatakse kolmes uurimuses.

**Esimese uurimuse** eesmärk oli välja selgitada, millised otsustusvõimalused on lasteaia- ja esimese kooliastme õpetajatel õppevara valikul ning milliseid eesmärke peaks õppevara lasteaia- ja esimese kooliastme õpetajate arvates täitma (I artikkel). Valimisse kuulus 64 lasteaiaõpetajat ja 47 esimese kooliastme õpetajat. Andmeid koguti valikvastuste ja avatud küsimustega küsimustiku abil. Andmete analüüsimisel kasutati kirjeldavat statistikat,  $\chi^2$ -testi ja Mann-Whitney U-testi. Tulemused näitasid erinevust kahe rühma vahel: kui lasteaiaõpetajatel on nende hinnangul õppevara valikul peaaegu täielik vabadus, siis enamik uuringus osalenud esimese kooliastme õpetajatest väitis, et saab vaid mingil määral õppevara valikul kaasa rääkida.

Erinevus ilmnis ka metakognitiivsete eesmärkide juures: esimese kooliastme õpetajad pidasid lasteaiaõpetajate arvamustega võrreldes olulisemaks, et õppevara aitaks saavutada eesmärke, mis on suunatud laste metakognitiivsete oskuste arengule. Kognitiivsete ja afektiivsete eesmärkide puhul kahe õpetajarühma vahel statistiliselt olulisi erinevusi ei ilmnunud. Lasteaiaõpetajad ei pidanud metakognitiivseid eesmärke sama oluliseks kui esimese kooliastme õpetajad, tõenäoliselt tulenevalt laste arengulistest eripäradest, mis võib viidata sellele, et lasteaias pööratakse suuremat tähelepanu sotsiaalsete ja emotsionaalsete pädevuste arendamisele. Kõrgema taseme oskuste, nagu metakognitsiooni edendamine näib olevat sobivam esimeses kooliastmes, kus lapsed on arenguliselt paremini valmis enesereguleeritud õppimiseks ja reflekteerivaks mõtlemiseks.

**Teises uurimuses** otsiti vastust küsimusele, millistest põhimõtetest lähtuvad õpetajad õppevara valimisel (I artikkel). Valimisse kuulusid 64 lasteaiaõpetajat ja 47 esimese kooliastme õpetajat (samad õpetajad, kes esimeses uurimises). Andmeid koguti küsimustikuga ning analüüsiti kvantitatiivse sisuanalüüsiga. Lasteaia- ja esimese kooliastme õpetajatel paluti nimetada kolm põhimõtet, mida nad õppevara valimisel oluliseks peavad. Õppevara valiku põhimõtteid analüüsid eristus neli peakategooriat: vastavus õppekavale, sisu ja ülesannete mitmekesisus, sisu ja ülesannete selgus ja arusaadavus, välised tegurid. Väga vähesed õpetajad nimetasid, et lasteaia ja esimese kooliastme õppevara peaks sisaldama mängulisust. Oluline on pöörata suuremat tähelepanu mänguliste õpistrateegiade lõimimisele õppetegevustega lisaks lasteaiale ka esimeses kooliastmes.

Seejärel paluti 50 lasteaiaõpetajal nimetada kolm olulisemat põhimõtet, mida nad järgivad eesti keele kui teise keele õpetamiseks mõeldud keeleõppemängude valimisel (II artikkel). Andmeid koguti küsimustikuga ning analüüsiti kvantitatiivse sisu- ja teemaanalüüsiga. Lasteaiaõpetajad nimetasid oluliste valiku-põhimõtetenäiteks teise keele oskuse arendamist, lapse individuaalsusega arvestamist ja teadmiste kujundamist. Nad lisasid, et keeleõppemängu esmane ülesanne on aidata omandada sõnavara ja hoida laste õpimotivatsiooni. Keelemängudes rõhutati teise keele arendamise sidumist erinevate ainevaldkondadega, mis on tugevalt seotud kogu õppetöö üleminekuga eestikeelsele õppele. Õpetajad ei nimetanud keeleõppemängude valiku põhimõttena erinevate kultuuride tutvustamist.

**Kolmandas uurimuses** kasutati Bronfenbrenneri ökoloogilist mudelit, et teha kindlaks, millised on tegurid, mis lasteaia- ja esimese kooliastme õpetajate arva-

tes mõjutavad nende õppevara valikut makro-, meso- ja mikrotasandil (III artikkel). Poolstruktureeritud intervjuud viidi läbi 19 lasteaia- ja esimese kooliastme õpetajaga, millele järgnes kvalitatiivne sisuanalüüs. Tuvastati tegurid, mis mõjutavad õpetajate otsuseid õppevara valides. Makrotasandi tegurid hõlmasid õppekava ja kirjastajate järgimist. Esimese kooliastme õpetajad kinnitasid, et nemad usaldavad kirjastusi (st kirjastuste väljaantud õppevara on lastele sobiv ja järgib õppekava), samas kui lasteaiaõpetajad kahtlevad kirjastuste õppevara sobilikkuses. Mesotasand puudutab ümbritsevate isikute (näiteks juhtkonna, kolleegide ja õpilaste) mõju. Esimese kooliastme õpetajad nimetasid, et neid mõjutavad enim just kolleegid, sest õppevara valitakse koolis ühiselt. Nii lasteaia- kui ka esimese kooliastme õpetajaid ütlesid, et lapsevanemad õppevara valikusse ei sekku. Mikrotasandi tegurid olid seotud õpetajate teadmiste ja kogemustega, kus peamiselt mõjutas õpetajate arvates õppevara valimist töökogemus. Õpetajate teadlik õppevara valik on oluline õpilaste õpitulemuste parandamisel.

Siinses doktoritöös esines mõningaid piiranguid. Esiteks, kuigi küsimustikud saadeti paljudele lasteaedadele ja koolidele, jäi küsimustikule vastanute hulk väikeseks. Teiseks, kuna uuringu eesmärk oli välja selgitada õpetajate arvamusi, siis ei pruugi saadud tulemused kajastada tegelikku olukorda õppevara valimisel. Kolmandaks, õppevara mõiste on tegelikkuses palju laiem, kui küsimustikus küsiti (seda kitsendati seda ühel juhul õpikute ja töövihikute ning teisel juhul keeleõppemängudega), nii võis see mõjutada õpetajate vastuseid. Neljandaks, kuna õpetajatel oli võimalus küsimustikus esile tuua vaid kolm olulisemat õppevara valiku põhimõtet, siis ei saa teha järeldust, et õpetajad teisi põhimõtteid õppevara valikul oluliselt ei pidanud.

Vaatamata piirangutele on doktoritööl tugevusi, mis võivad olla abiks sarnaste uuringute planeerimisel. Leiti, et õppevara valikut mõjutavate tegurite jaotus Bronfenbrenneri mudelil on asjakohane ja sobib sarnastele uuringutele. Uuringu kõige olulisem väärtus seisneb selles, et see on esimene doktoritöö, mis uurib Eesti õpetajate arvamusi õppevara valiku erinevate aspektide kohta. Doktoritöö näitas, et õpetajate arvamused õppevara valiku kohta on mitmekesised. Tulemused on abiks nii õppekavade, kutsestandardite kui ka õppevara koostamist ja kirjastamist suunavate regulatsioonide ülevaatamisel. Õpetajad nimetasid mitmeid olulisi õppevara valiku põhimõtteid, mida saab kasutada õppevara analüüsimisel ja arendamisel. Lisaks pole ei Eestis ega ka rahvusvaheliselt pööratud piisavalt tähelepanu lasteaia ja esimese kooliastme õppevarale. Kuna need haridusastmed loovad aluse laste edasisele õppimisele, peab õppevara olema kvaliteetne ja valitud laste arengulistest vajadustest lähtuvalt.

Sobiva õppevara valimise oskus on eriti ilmne nüüd, kui Eesti on läinud üle eestikeelsele õppele. Õpetajatele on õpetatud, kuidas koostada õppevara, sealhulgas erinevaid õppemänge, lähtudes konkreetsest valdkonna eesmärgist, kuid seda pole tehtud piisava süstemaatilisusega. Tasuks kaaluda, kuidas õppevara teemat õpetajakoolitusse integreerida nii, et see oleks selgemini nähtav. Samuti on selge vajadus praktiliste käsiraamatute või suuniste järele, mis toetaksid õpetajaid laste arengule sobiva õppevara valimisel, kohandamisel ja loomisel, eriti kasutamiseks mitmekeelsetes ja -kultuurilistes rühmades ja klassides.

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## **PUBLICATIONS**

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- Taimalu, M., Uibu, K., & Leola, H. (2020). Eesti keele ja matemaatika õppevara valiku põhimõtted ja eesmärgid lasteaia- ja klassiõpetajate hinnangul. [Principles and goals that determine the choice of Estonian language and mathematics learning materials as reported by pre- and primary school teachers.] *Eesti Haridusteaduste Ajakiri. Estonian Journal of Education*, 8(2), 164–191. <https://doi.org/10.12697/eha.2020.8.2.07>
- Leola, H., Uibu, K., & Ugaste, A. (2024). Varase eesti keele kui teise keele õppemängude kasutusvõimalused ja valikud õpetajate hinnangul. [Possibilities and selection of games for early Estonian as a second language learning according to teachers' assessment.] *Eesti Rakenduslingvistika Ühingu aastaraamat = Estonian papers in applied linguistics*. 20, 133–148. <https://doi.org/10.5128/ERYa20.08>
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