

Provision of teaching and learning resources in schools as a prerequisite for high-quality social sciences education: an analysis of Lithuanian general education schools

Jovita Ponomariovienė, Simonas Šabanovas & Asta Ranonytė

To cite this article: Jovita Ponomariovienė, Simonas Šabanovas & Asta Ranonytė (2026) Provision of teaching and learning resources in schools as a prerequisite for high-quality social sciences education: an analysis of Lithuanian general education schools, Cogent Education, 13:1, 2702672, DOI: [10.1080/2331186X.2026.2702672](https://doi.org/10.1080/2331186X.2026.2702672)

To link to this article: <https://doi.org/10.1080/2331186X.2026.2702672>



© 2026 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 17 Jul 2026.



Submit your article to this journal [↗](#)



Article views: 285



View related articles [↗](#)



View Crossmark data [↗](#)

Provision of teaching and learning resources in schools as a prerequisite for high-quality social sciences education: an analysis of Lithuanian general education schools

Jovita Ponomariovienė^a , Simonas Šabanovas^b  and Asta Ranonytė^c 

^aEducation Academy, Vytautas Magnus University, Kaunas, Lithuania; ^bInstitute of Educational Sciences and The Faculty of Chemistry and Geosciences, Vilnius University, Vilnius, Lithuania; ^cEducation, Nacional Agency for Education, Vilnius, Lithuania

ABSTRACT

The implementation of competence-based curricula requires not only methodological change but also adequate material conditions that enable meaningful learning experiences. This study examines the availability and use of teaching and learning materials as a structural precondition for high-quality social studies education in Lithuanian general education schools. Using a mixed-methods design, the research combines national quantitative data from 1,315 schools with qualitative interviews conducted with 32 school principals. The findings indicate a systemic shortage of teaching materials in history, geography, and primary social studies. Schools often possess only part of the required resources, with particularly limited access to interactive and inquiry-based tools that support analytical, spatial, and historical thinking. While traditional visual materials are more common, modern and subject-specific resources remain insufficient. School leaders report prioritizing materials necessary for formal curriculum implementation, especially textbooks, while innovative tools are frequently postponed due to financial constraints. Although many schools aim for equal distribution across subjects, social studies are often perceived as relatively under-resourced. The findings suggest that teaching materials function as an important mediating factor between intended curriculum and classroom practice. A more strategic, subject-sensitive approach to resource provision is needed to ensure equitable and high-quality competence-based social studies education.

IMPACT STATEMENT

This study demonstrates that the availability of teaching and learning resources is a structural prerequisite for the successful implementation of competence-based social sciences education. By combining nationwide quantitative data from 1,315 Lithuanian schools with qualitative evidence from school leaders, the study reveals persistent shortages of subject-specific and inquiry-oriented resources and explains how financial constraints shape school-level resource allocation. The findings contribute to curriculum implementation research by conceptualizing teaching resources as mediating mechanisms between intended and enacted curricula and provide evidence to inform educational policy, strategic school planning, and more equitable resource provision.

ARTICLE HISTORY

Received 16 March 2026
Revised 3 July 2026
Accepted 8 July 2026

KEYWORDS

Competence-based education; teaching and learning materials; social studies education, educational resources; curriculum implementation

SUBJECTS

Social Sciences; Education; Classroom Practice; Assessment & Testing; Social Sciences; Education; Classroom Practice; Social Sciences; Education; Classroom Practice; Teaching & Learning

1. Introduction

In the academic literature, teaching and learning resources are defined, from both didactic and competency-based education perspectives, as purposeful and pedagogically grounded tools. From a didactic perspective, teaching and learning resources are considered a classical component of the educational process, helping to concretize content, visualize abstract concepts, model phenomena, and organize differentiated instruction (Rozina, 2016; Shulman, 2005). In the context of competency-based education, resources are evaluated not only in terms of whether they transmit information, but also whether they

CONTACT Jovita Ponomariovienė  jovita.ponomarioviene@vdu.lt  Education Academy, Vytautas Magnus University, Kaunas, Lithuania.

© 2026 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

activate students' engagement, foster problem-solving, collaboration, reflection, and the application of knowledge in diverse contexts (Biesta, 2015; Redecker, 2017; Voogt et al., 2018).

The implementation of the general curriculum in schools is inseparable from the availability, quality, and meaningful use of teaching and learning resources (Choppin et al., 2021; Ordu, 2021; Scott, 2015). The literature consistently emphasizes that teaching and learning resources and instructional materials function as an intermediary link between the intended curriculum and the implemented curriculum, as it is through them that curricular content becomes actual learning experiences in the classroom (Choppin et al., 2021). In the context of the Lithuanian general education system, this connection becomes particularly significant in the implementation of competency-based education, where curricula emphasize not only subject-specific knowledge but also the development of students' skills, values, critical thinking, problem-solving abilities, and the application of knowledge in real-life situations (Lietuvos Respublikos švietimo, mokslo ir sporto ministerija, 2022; Lietuvos Respublikos Vyriausybė, 2012; Ponomariovienė & Jakavonytė-Staškuvienė, 2022).

The OECD Education 2030 (Organisation for Economic Co-operation and Development [OECD], 2020) initiative highlights that the development of competencies requires learning environments that enable experiential, integrated, and contextualized learning, which is not possible without purposefully selected and effectively used teaching resources. Such curricular ambitions demand not only methodological changes but also appropriate teaching and learning materials that support experiential, inquiry-based, integrated, and reflective learning (Bacon, 2018; Cuyacot & Cuyacot, 2022; Drake & Reid, 2018; Jonnaert et al., 2020). The implementation of the Lithuanian general curricula risks becoming fragmented if schools' provision of teaching and learning resources is not aligned with the philosophy of the curricula and the logic of competency development (IBE-UNESCO, 2016). Therefore, the provision of teaching and learning resources and the practices surrounding their use become a structural condition for curriculum implementation, directly influencing the quality of education, curricular coherence, and the genuine realization of competency-based education in Lithuanian schools. If schools lack sufficient resources, competency-based education risks remaining declarative—formally embedded in policy documents but only fragmentarily realized in everyday pedagogical practice (Nafisah et al., 2025).

In the context of Lithuanian education policy, an important step toward ensuring the consistent and high-quality implementation of the general curricula was the approval of the Education Provision Standard in 2024 by order of the Minister of Education, Science and Sport (Lietuvos Respublikos švietimo, mokslo ir sporto ministerija, 2024). This document clearly defines the teaching and learning materials and educational resources that schools must possess in order to implement the curriculum in accordance with the provisions of the general curricula.

Although the standard will become mandatory from 2028, it already performs an important guiding function by providing schools with the opportunity to assess their current level of provision, identify missing resources, and plan long-term solutions. In this way, the Education Provision Standard functions not only as a regulatory document but also as a strategic instrument that supports schools in systematically preparing for the implementation of competency-based education and in reducing the gap between the formally defined curriculum and the real conditions for its implementation.

1.1. Research objectives

The main aim of this study is to analyze the availability and use of teaching and learning materials as a structural condition for the quality implementation of competence-based social studies education in Lithuanian general education schools.

To achieve this aim, the study pursues the following objectives:

1. To examine the current state of school provision with teaching and learning materials in Lithuanian general education schools, focusing on their alignment with the requirements of competence-based social studies education.
2. To explore school leaders' perceptions, decision-making criteria, and priorities regarding the acquisition and use of teaching and learning materials, including the balance between digital and traditional resources.

The study contributes to the literature on competence-based curriculum implementation by conceptualizing teaching and learning resources not only as supportive educational tools, but also as structural mechanisms that shape curriculum enactment, educational equity, and disciplinary balance within schools.

2. Background

2.1. The quality of resources and their alignment with the general curricula as a precondition for coherent curriculum implementation

The quality of teaching and learning resources and their alignment with the general curricula constitute one of the key factors determining the coherent implementation of the curriculum in school practice. Teaching and learning resources are not neutral instruments—they structure teachers' decisions, influence the flow of lessons, shape content emphases, and affect students' learning experiences (Pia, 2015; Remillard et al., 2014). Learning environment support is defined as a set of factors and conditions that facilitate student learning, encompassing curriculum provisions, teaching and learning methods, learning resources, teachers' pedagogical practices, material infrastructure, and learning comfort (Azzahra, 2025; Fitria et al., 2020). Such support is considered a crucial precondition not only for students' motivation and learning effectiveness, but also for their ability to actively engage in thinking and knowledge construction processes (Samodro et al., 2020). A high-quality and well-organized learning environment positively influences student learning and educational outcomes, which is particularly relevant in the context of competency-based education, where emphasis is placed on the active role of the learner and meaningful learning experiences (Azzahra, 2025; Jannah & Yaumi, 2024; Ponomariovienė & Jakavonytė-Staškuvienė, 2025).

Research highlights that diverse teaching and learning resources support active student participation and knowledge construction (Pia, 2015), while digital and technologically enriched learning environments may additionally strengthen engagement and interaction processes (Azzahra, 2025; Etzel et al., 2025).

Research indicates that the availability of teaching and learning resources and their meaningful use significantly influence students' knowledge formation; however, the extent of this impact varies depending on the educational context, subject area, and the management of resources within the school. Teaching and learning materials make complex concepts tangible through visual representations, facilitating understanding and enhancing learning effectiveness (Juwariah & Aprima, 2025). Moreover, empirical evidence suggests that appropriate school facilities and infrastructure can contribute to learning effectiveness, but this impact becomes significant only when the learning environment and teaching resources are systematically integrated into curriculum implementation (Azzahra, 2025; Susilawati et al., 2020).

For coherent curriculum implementation, not only the quantity of teaching and learning resources is important, but also their quality, internal consistency, and alignment with curriculum goals and standards. Research shows that schools which strategically plan the acquisition of teaching and learning resources and deliberately align them with curriculum provisions create more favorable conditions for coherent curriculum implementation (Mwita & Onyango, 2022). In such schools, teaching and learning resources become not merely technical tools for 'implementing' the curriculum, but strategic factors influencing curricular coherence, teachers' professional practice, and the overall quality of education (Abad & Hattie, 2025; Bouckaert, 2019; Hattie, 2023; Momen & Aich, 2025).

The OECD (Organisation for Economic Co-operation and Development [OECD], 2020) Education 2030 framework emphasizes that contemporary curricula should be implemented as ecosystems encompassing not only content, but also teaching and learning resources, school leadership, teacher competencies, and decision-making processes. Within this model, teaching and learning resources are perceived as active participants in the educational process, capable of either strengthening or weakening curriculum implementation. Even clearly articulated curricular requirements will not be effectively realized if schools lack a well-developed ecosystem of teaching and learning resources. Insufficient provision of resources is one of the factors contributing to the gap between the official curriculum and actual teaching practice, particularly when teachers are forced to adapt content based on available resources rather than those required by the curriculum (Fasinro et al., 2024). Such situations increase the risk of fragmentation and hinder the maintenance of curricular coherence, especially in the context of competency-based education, which requires purposeful and well-aligned use of teaching and learning resources.

Limited material and digital resources constitute one of the main barriers to implementing modern competency-based education, despite the declarative ambitions of curricular reforms (Nafisah et al., 2025).

These insights suggest that teaching and learning resources and the learning environment should not be viewed as supplementary elements of education, but as structural components of curriculum implementation, directly linked to the quality, coherence, and effectiveness of competency development. However, much of the existing literature approaches teaching and learning resources primarily as supportive conditions for curriculum implementation, while less attention is given to how resource provision itself may shape curricular priorities, disciplinary hierarchies, and schools' strategic decision-making processes within competence-based education reforms.

2.2. The impact of teaching and learning resources on teachers' professional practices

In the educational context, teaching and learning resources function not only as tools for conveying curricular content, but also as structural factors shaping teachers' professional activity and their everyday didactic decision-making. Teaching and learning resources influence how teachers interpret curriculum goals and organize instruction (Remillard et al., 2014), while curriculum ergonomics research further demonstrates how interactions between teachers and materials shape everyday pedagogical decision-making (Choppin et al., 2021).

Teaching and learning resources, including instructional materials, operate as a structural condition for pedagogical practice, as their planning and use shape teachers' decision-making spaces, professional autonomy, and opportunities to implement curriculum objectives (Organisation for Economic Co-operation and Development [OECD], 2017). Teachers who work with flexible, adaptive, and reflection-oriented resources more frequently demonstrate higher levels of pedagogical content understanding, greater professional confidence, and a stronger inclination to employ deeper learning strategies (Abad & Hattie, 2025; Priestley et al., 2015). In contrast, rigidly structured and normative teaching and learning resources may constrain teachers' decision-making autonomy, directing pedagogical practice toward content transmission rather than the facilitation of students' learning processes.

Teachers' professional decision-making spaces are formed through the interaction between individual competencies and the structural conditions of the education system. Within this context, teaching and learning resources function as one of the key structural conditions that can either enhance or restrict teacher agency (Priestley et al., 2015). Teachers who are able to critically evaluate, adapt, and creatively apply teaching and learning resources are more likely to act as designers of the learning process rather than as implementers of pre-defined instructional scripts.

Certain teaching and learning resources can function as 'educative' resources—that is, materials designed not only for students but also to support teachers' own development of subject-matter and pedagogical understanding (Davis & Krajcik, 2005). Such resources foster teacher reflection, enhance professional confidence, and contribute to workplace-based professional learning.

Teaching and learning resources also influence collective pedagogical practices within schools. Shared agreements regarding the selection and use of resources help to establish a common pedagogical language, strengthen professional dialogue, and contribute to more coherent curriculum implementation (Coburn, 2001; Spillane, 2006). In this way, teaching and learning resources operate not only at the individual level, but also at the organizational level, shaping school pedagogical culture and leadership practices. While previous studies have mainly focused on the pedagogical use of teaching and learning resources and their influence on teacher agency, less attention has been devoted to how institutional resource allocation practices shape the actual implementation of competence-based curricula across different subject areas. This study addresses this gap by examining resource provision not only as a pedagogical issue, but also as a structural and organizational dimension of curriculum enactment.

3. Materials and methods

3.1. The strategy of the empirical study, the context of the school, and the participants in the study

The empirical study was based on a mixed-methods research strategy, combining quantitative and qualitative data collection methods. This research design was chosen in order not only to assess schools' provision

Table 1. Distribution of schools by implemented education programmes ($n = 32$).

Implemented education programmes	Number of schools
Primary education and Lower secondary education (Grades 5–8)	$N = 12$
Primary education and Lower secondary education (Grades 5–10)	$N = 4$
Lower secondary education (Grades 5–8) only	$N = 1$
Lower secondary education (Grades 9–10) and Upper secondary education (Grades 11–12)	$N = 6$
Upper secondary education (Grades 11–12) only	$N = 2$
All general education levels (Primary, Grades 5–8, Grades 9–10, Grades 11–12)	$N = 7$

of teaching and learning resources at the national level, but also to provide a deeper understanding of the context in which these data are interpreted, the decision-making logic of school leaders, and the challenges encountered in practice. The application of a mixed-methods approach enabled data triangulation, thereby strengthening the reliability and analytical depth of the research findings (Creswell & Creswell, 2023; Creswell & Poth, 2018; King & Horrocks, 2010; Patton, 2014; Žydzūnaitė & Sabaliauskas, 2017).

The quantitative data used in this study were obtained from the Lithuanian National Education Agency, which in 2025 conducted a nationwide survey of educational institutions to assess schools' preparedness to implement the Education Provision Standard for schools implementing pre-primary, primary, and general education curricula. This standard was approved on 4 December 2024 by Order No. V-1374 of the Minister of Education, Science and Sport of the Republic of Lithuania and became a key instrument of educational policy reform aimed at the systematic development of schools' material learning environments. For the purposes of this study, the National Education Agency granted the researchers access to the survey dataset *Svietimo-aprupinimo-standarto-igyvendinimas-2025-m.pdf*.

In the context of national education policy reforms in Lithuania, this standard provided the conceptual foundation for the study, enabling the analysis of schools' material provision not as an isolated or fragmented phenomenon, but as a structural condition for curriculum implementation, directly linked to educational quality and the realization of competency-based education.

In the survey conducted by the National Education Agency, data were collected from school representatives responsible for organizing the educational process, planning material resources, and implementing curricula. This logic of data collection ensured that the information reflected an institutional rather than an individual pedagogical perspective, allowing for the evaluation of systemic aspects of schools' provision of teaching and learning resources.

The qualitative part of the study involved 32 school principals representing different school types and levels of education (Table 1). The participants for the qualitative phase were selected using purposive sampling in order to ensure variation in school type, educational level, and institutional context. The selection aimed to include school leaders representing different combinations of general education programmes and diverse experiences in implementing competence-based curricula and managing teaching and learning resources. Such a sampling strategy was chosen to capture a broad range of institutional perspectives relevant to the research objectives (Patton, 2014).

The inclusion of school leaders in the study made it possible to reveal a strategic perspective on the planning and use of teaching and learning resources and their alignment with curriculum implementation.

3.2. Research sample, duration, and procedure

The quantitative part of the study was conducted in the form of a national survey. The survey took place from 21 October to 21 November 2025 through the Education Management Information System. The survey instrument was developed based on the Education Provision Standard approved in 2024 and covered only the mandatory teaching and learning resources required for the implementation of the updated General Curricula. Educational institutions provided data on the quantity of available resources, their compliance with the requirements of the standard, and the additional need for specific resources, taking into account curriculum requirements, the number of students, the number of subject-specific classrooms, and lesson schedules.

A total of 1,315 Lithuanian general education schools participated in the survey and submitted their responses.

Table 2. Interview questions for schools principals.

No	Questions	Rationale (which scientific sources were referenced, what is intended to be discovered with this question)
1.	How would you describe a 'well-equipped school' from the perspective of teaching and learning resources?	Through this question, the researchers sought to explore school leaders' understanding of the concept of a 'well-equipped school', to identify the criteria they consider essential when evaluating the sufficiency of teaching and learning resources, and to examine how they relate resource provision to the implementation of the general curricula and the quality of education (Coburn, 2001; Organisation for Economic Co-operation and Development [OECD], 2017; Spillane, 2006).
2.	What criteria determine the decision about which teaching and learning resources should be acquired first in a school?	The purpose of this question was to identify the criteria school leaders use when setting priorities for the acquisition of teaching and learning resources, how these decisions are linked to the requirements of the general curricula, teachers' needs, and students' educational needs, and how limited resources are transformed into strategic decisions at the school level (Abad & Hattie, 2025; Coburn, 2001; Organisation for Economic Co-operation and Development [OECD], 2017; Remillard et al., 2014; Spillane, 2006).
3.	Which teaching and learning resources are usually given the highest priority when planning their acquisition in a school?	This question aimed to identify which teaching and learning resources are considered most important in school leaders' decision-making and why, as well as to reveal how national requirements, the general curricula, students' needs, and practical aspects of school operations are reflected in concrete decisions regarding the acquisition of resources (Abad & Hattie, 2025; Leithwood et al., 2020; Organisation for Economic Co-operation and Development [OECD], 2017, 2020; Remillard et al., 2014).
4.	How do you assess the balance between digital and other teaching and learning resources in your institution when teaching social sciences subjects?	This question sought to examine how school leaders perceive the balance between digital and other teaching and learning resources in social sciences subjects, and how this balance is related to the specificity of the curriculum content, students' age, and the goals of competency development (Hattie, 2023; Leithwood et al., 2020; Organisation for Economic Co-operation and Development [OECD], 2017, 2021; Wineburg & Reisman, 2015).
5.	Is there a subject area that, in your opinion, consistently remains less well-equipped with teaching and learning resources? Please justify your answer.	Through this question, the researchers aimed to determine whether school leaders identify systemic inequalities in the provision of teaching and learning resources across subject areas, what reasons they believe explain these disparities, and which subjects tend to remain on the 'margins' when planning resource allocation (Apple, 2004; Biesta, 2010; Leithwood et al., 2020; Organisation for Economic Co-operation and Development [OECD], 2017).
6.	How are teachers', students', and parents' opinions taken into account when making decisions about the acquisition of teaching and learning resources?	This question aimed to explore the extent to which different groups within the school community—teachers, students, and parents—are involved in decision-making processes regarding the acquisition of teaching and learning resources. It sought to reveal whether such decisions are based on dialogue and shared agreement, or whether administrative or normative criteria tend to dominate, and how the voice of the community contributes to educational quality, the relevance of resources, and their meaningful use in school practice (Epstein, 2018; Organisation for Economic Co-operation and Development [OECD], 2017; Priestley et al., 2015; Spillane, 2006).
7.	How does your school seek to balance sustainability principles, the use of information technologies, and the quality of education?	This question aimed to explore how school leaders understand and practically reconcile three interrelated priorities—sustainability, the use of technologies, and educational quality. It also sought to assess whether sustainability is perceived as a strategic element of educational quality rather than as a separate or merely formal initiative (European Commission, 2020; Hattie, 2023; Leithwood et al., 2020; Organisation for Economic Co-operation and Development [OECD], 2017, 2021; Sterling, 2010; UNESCO, 2017).

To complement the quantitative findings and enhance their validity, a qualitative component was conducted in the form of semi-structured interviews with school leaders. The interviews were carried out after the analysis of the quantitative data in order to provide a deeper interpretation of the identified trends and to explain differences that emerged in the quantitative analysis (Baškarada, 2014; Yin, 2018). The interviews were conducted between 25 February and 3 March 2026. Thirty-two school principals participated in the semi-structured interviews and responded to seven pre-prepared open-ended questions (see Table 2). The number of participants was considered sufficient to ensure variation in institutional perspectives and to achieve thematic saturation in relation to the study aims.

The qualitative interview data were analyzed using thematic analysis. Interview transcripts were coded inductively and iteratively in several stages, moving from initial open coding to the development of broader thematic categories related to resource provision, decision-making practices, and curriculum implementation.

The coding process was continuously discussed among the researchers in order to refine category definitions and ensure analytical consistency. To strengthen the credibility of the findings, emerging themes were compared across participants and interpreted in relation to the quantitative data.

The application of the data triangulation principle made it possible to compare and integrate quantitative and qualitative data, ensuring a systematic analysis and a deeper interpretation of the research findings. The quantitative data provided a broad overview of the national situation, while the qualitative interviews revealed contextual factors, decision-making logic, and practical implementation experiences, thereby strengthening the reliability and analytical validity of the study results. The integration of quantitative and qualitative findings also contributed to the validation and contextual interpretation of the results (Creswell & Creswell, 2023).

3.2.1. Scientific research ethics

The study was approved by the Research Ethics Committee of the Institute of Educational Research, Vytautas Magnus University (Approval No. SA-EK-26-88, 25 February 2026). The research complied with the requirements of confidentiality and data protection throughout all stages of the study.

Quantitative data were obtained from the National Agency for Education as part of a nationwide institutional survey. These data were provided in aggregated form and did not include any personally identifiable information. Participation in the qualitative part of the study was voluntary. School principals who took part in the semi-structured interviews were informed about the purpose of the study, data collection procedures, and their right to withdraw from the study at any time without any negative consequences. Written informed consent was obtained from all interview participants prior to data collection.

4. Results

In this article, the empirical analysis focuses on social sciences subjects—history (Grades 5–12), geography (Grades 5–12), law (Grades 9–12), and social education (Grades 1–4)—with the aim of highlighting the specific features of resource provision in these subjects and identifying systemic trends at the national level.

Although the social sciences subject block within the General Curricula also includes economics, philosophy, and—within the elective subjects of upper secondary education—psychology, these subjects are not analyzed in detail in this study. This choice is justified by the fact that, at present, there are no formally defined mandatory material teaching and learning resources for economics, philosophy, or psychology that schools are required to acquire.

Table 3 presents the level of schools' provision of teaching and learning resources in percentage terms, indicating the proportion of required resources that schools report having for each subject across different levels of education. These data allow for an assessment of the sufficiency of material resources for curriculum implementation.

At the primary education level (Grades 1–4), schools have on average 53.19% of the required resources for social education. This indicates that schools lack nearly half of the prescribed materials, which may limit opportunities for experiential, visual, and contextualized learning at the early stages of social understanding. Without appropriate teaching resources, opportunities for experiential, visual, and

Table 3. Information on the provision of teaching and learning resources in Lithuanian schools.

	Primary education (grades 1–4)	Lower secondary education (grades 5–8)	Lower secondary education (grades 9–10)	Upper secondary education (grades 11–12)
Social Education (Grades 1–4)	53,19 proc.	The subject is not taught.	The subject is not taught.	The subject is not taught.
History	The subject is not taught as a separate discipline. History content is integrated into Social Education.	64,50 %	62,52 %	54,61 %
Geography	The subject is not taught.	59,79 %	59,79 %	51,85 %
Law	The subject is not taught.	The subject is not taught.	The subject is not taught.	81,32 %

contextualized learning may be reduced, potentially limiting students' engagement with social studies content and the development of deeper understanding (Lama, 2024).

In the first stage of lower secondary education (Grades 5–8), schools report having 64.50% of the required history resources and 59.79% of the required geography resources. At this stage, students begin working with collections of historical sources, maps, diagrams, and statistical data; therefore, a shortage of resources may restrict inquiry-based, analytical, and data-interpretation activities. Appropriate resources enhance students' ability to analyze and critically evaluate information, whereas their absence reduces opportunities for active engagement in learning and the development of interpretative skills.

In Grades 9–10, the level of provision remains very similar: 62.52% for history and 59.79% for geography. The data show that as students move to a higher level, where content becomes more complex and conceptual, the quantity of resources does not increase proportionally. Such a mismatch may hinder deeper analytical learning and limit opportunities to systematically develop higher-order thinking skills, particularly those related to the interpretation of statistical data (Andres et al., 2025).

At the upper secondary level (Grades 11–12), the situation becomes even more challenging in history (54.61%) and geography (51.85%), with schools possessing only about half of the required resources. This is particularly problematic because at this stage students prepare for final examinations, analyze complex textual, visual, and statistical sources, and engage in interpretative tasks.

The data presented in the table reveal a systemic shortage of teaching and learning resources in the field of social sciences, particularly in history and geography in the upper grades. In most cases, the proportion of available resources reaches only about one-half to two-thirds of the required amount. This may limit the implementation of contemporary, inquiry- and analysis-based education and widen the gap between the intended curriculum and the actual learning conditions in schools. Previous empirical studies suggest that insufficient teaching resources may reduce opportunities for student engagement and present challenges for the pedagogical process, particularly in implementing active and competency-based learning approaches (Andres et al., 2025; Lama, 2024).

Table 4 presents detailed information on the availability of specific teaching and learning resources in social sciences subjects in Lithuanian schools. Together with Table 3, it demonstrates not only the overall level of school provision but also the qualitative deficiencies within particular groups of teaching and learning resources. The history subject is relatively better equipped with traditional visual materials—maps for Lithuanian history (60.77%) and for world history topics (60.30%). However, there is a significant lack of interactive, modern learning-support tools, such as an interactive timeline that visually complements and illustrates the coherence of different historical periods, major phenomena, and events (15.99%). This indicates that history teaching still relies more heavily on static forms of information presentation, while the visualization of chronological understanding, cause-and-effect relationships, and the dynamics of historical processes remains limited. Interactive digital tools and modern technologies can significantly enrich history education, promote engagement, and deepen students' understanding of historical events, whereas traditional materials often remain passive and insufficiently stimulate higher-level analysis and critical thinking (Lee, 2023). This is particularly important in history education, where inquiry-based learning depends on students' ability to work with multiple historical sources, evaluate evidence, and construct interpretations rather than reproduce factual knowledge (Saye & Brush, 2006;

Table 4. Availability of social sciences teaching and learning resources in Lithuanian schools (%).

Subject	Resources	Percentage of school provision
History	Maps (digital or print) for learning Lithuanian history – 7 units covering different themes	60,77 %
	Maps (digital or print) for learning world history – 14 units covering different themes	60,30 %
Geography	Interactive history timeline from prehistory to the present day	15,99 %
	Posters (digital or print) – 12 units for teaching different themes	39,32 %
	Maps (digital or print) – 8 units for teaching different themes	58,98 %
	Political globe	34,73 %
	Physical globe	73,92 %
Law	Constitution of the Republic of Lithuania	81,32 %
Social Education (Grades 1–4)	Globe	50,28 %
	Wall map of Lithuania	55,97 %

Wineburg & Reisman, 2015). The limited level of resource provision also restricts the individualization of the educational process and its adaptation to students with diverse special educational needs.

In geography education, the situation is uneven. The relatively high provision rate of the physical globe (73.92%) indicates that basic tools for understanding the structure of the world are more frequently available. However, the shortage of political globes (34.73%) and thematic posters (39.32%) limits opportunities to examine geopolitical, social, and economic phenomena using diverse sources of information. Research shows that visual tools—maps, diagrams, graphs, and other graphical representations of knowledge—are essential in geography education because they help students ‘see’ spatial and relational concepts, such as territorial relationships, topography, or demographic data, which verbal explanations alone cannot convey as effectively. Visual resources not only facilitate understanding but also foster problem-solving and spatial reasoning, which are central to geographical thinking competence. In geography education, the availability of visual and spatially oriented resources is particularly important because geographical competence is closely linked to the interpretation of spatial relationships, data visualization, and map-based inquiry learning (Trahorsch et al., 2019).

In the context of primary social education, the shortage of globes (50.28%) and wall maps of Lithuania (55.97%) suggests that even at an early stage, children are not always provided with sufficient opportunities to develop spatial and geographical understanding of the world through visual tools.

The analysis of the school leaders’ survey data reveals that decisions regarding priorities for the acquisition of teaching materials are shaped by a complex interaction of educational policy requirements, internal institutional needs, and financial constraints, as presented in Table 5.

A key factor is curriculum renewal ($N = 12$): regardless of the type of school they lead, principals consistently emphasize the necessity of first ensuring the provision of resources (especially textbooks) required for the implementation of the updated general curricula. This aligns with Fullan’s (2016) argument that successful curriculum implementation is directly dependent on the availability of material resources and their alignment with curricular goals. At the same time, the findings confirm a prevailing educational practice in which the textbook is treated not only as an essential but often as the primary—or even sole—teaching resource, regardless of the subject taught, the grade level, or the intended learning objectives.

Table 5. Criteria influencing schools’ decisions on prioritizing the acquisition of teaching and learning materials ($n = 32$).

Category	Number of responses	Illustrative quotes from school leaders (language unedited)
Requirements of the General Curricula and the Updated Content	$N = 12$	‘First and foremost, we acquire the resources that are essential for implementing the general curriculum’ (P6); ‘Textbooks are purchased in accordance with the updated curricula’ (P4); ‘Changes in the content of the updated curricula’ (P13).
Teachers’ Needs and Professional Judgment	$N = 11$	‘Teachers’ reasoned justification of which resources are needed’ (P7); ‘Teachers’ well-argued needs are taken into account’ (P22); ‘Needs expressed by teachers’ (P30).
School Strategic and Operational Priorities	$N = 9$	‘The priority objectives set out in the school’s strategic and operational plans’ (P1); ‘The directions for educational improvement planned in the school’s strategy’ (P7); ‘The priorities established by the institution’ (P9).
Financial Capacity and Resource Constraints	$N = 8$	‘No funds remain for other teaching resources’ (P4); ‘Insufficient funding’ (P8); ‘If the school cannot afford to purchase something ... it does not buy it at all’ (P14).
Analysis of Available and Missing Resources	$N = 6$	‘The ratio between available and missing resources’ (P3); ‘Resources already available’ (P11); ‘Those that are most outdated and unsuitable for use’ (P19).
Impact of Resources on Educational Quality and Outcomes	$N = 7$	‘What is most needed to achieve results becomes the priority’ (P14); ‘< ... > help improve students’ achievement and engagement’ (P15); ‘< ... > make the curriculum more engaging’ (P25).
Students’ Needs and Learning Level	$N = 6$	‘< ... > students’ learning level’ (P3); ‘Ensuring inclusion – whether the resources are needed for students with special educational needs (SEN)’ (P15); ‘< ... > students’ age stage’ (P24).
Universality of Resources and Frequency of Use	$N = 5$	‘< ... > accessible to the widest possible range of users’ (P15); ‘< ... > whether they will be used across multiple classes or subjects’ (P15); ‘The universality of resources (the possibility of using them across different grade levels)’ (P24).
Examination Criteria (Lower Secondary Assessments and State Matura Examinations)	$N = 3$	‘Resources that significantly contribute to preparing students to achieve final results in the lower secondary achievement assessment and the state matura examinations’. (P25); ‘First and foremost, those subjects that are included in the state matura examinations’. (P26).

Simultaneously, the importance of teachers' professional autonomy emerges ($N = 14$), as decisions are frequently based on teachers' reasoned needs and their capacity to integrate new resources into the teaching process. Rather than making unilateral decisions, school leaders delegate responsibility for selecting resources to subject specialists, acknowledging that teachers' professional competence is a crucial factor in ensuring the meaningful use of materials (Spillane, 2006). However, strategic planning is constrained by limited financial resources and short-term budget cycles ($N = 8$), which compel schools to choose between necessity and innovation, often prioritizing resource universality and their direct impact on student achievement (lower secondary assessments and state matura examinations). It can be concluded that schools tend to follow a 'minimum necessity' strategy, in which innovations (such as digital content or modern laboratory equipment) compete with the foundational standards of resource provision.

The analysis of the data shows that the majority of respondents state that all social sciences subjects are equally provided with resources ($N = 18$), indicating an institutional intention to ensure equal opportunities (see Table 6). However, the subjective differentiation among social sciences subjects (geography, $N = 7$; history, $N = 6$; social education, $N = 5$) confirms the phenomenon of 'disciplinary hierarchy' discussed in the academic literature. According to Bleazby (2015), educational systems often prioritize STEM disciplines, which may result in relative funding deficits for other subject areas.

This imbalance may also be interpreted through the lens of curriculum reform: when core resources are directed toward compulsory examination subjects (such as mathematics and languages), other subjects tend to receive the 'remaining' funds. It can be assumed that investment priorities are directly linked to their impact on final standardized outcomes (Ball, 2003). Such a situation indicates the need for school leaders to adopt a more differentiated, needs-based resource allocation strategy—one that is grounded not only in proportional financial distribution but also in the methodological specificity of subjects, educational goals, and the long-term balance of competency development.

School leaders' responses reveal a consistent relationship between the institutional approach to sustainability, educational quality, and the balance between digital and other teaching and learning resources (see Table 7). Schools that perceive technology as a means to achieve educational goals—rather than as an end in itself—are more likely to adopt a balanced, blended model in which digital and other

Table 6. Subjects perceived as being less well equipped with teaching and learning materials ($n = 32$).

All subjects are equally provided with resources	Geography	History	Law	Social education
$N = 18$	$N = 7$	$N = 6$	$N = 0$	$N = 5$

Table 7. Interrelation between sustainability–technology–quality strategies and the balance of digital and other teaching materials in social studies education ($n = 32$).

Category	Number of responses	Illustrative quotes from school leaders (language unedited)
Balanced use of technologies	$N = 11$	'Technologies help improve the quality of education'. (P6); 'We strive to ensure that the use of technologies is not an end in itself, but provides added value'. (P11); 'We apply technologies purposefully, only when they genuinely contribute to educational quality'. (P28).
Integration of digital and other resources	$N = 14$	'Textbooks and digital resources – 50/50 percent'. (P10); '<...> both complement each other, through a balanced combination'. (P19); '(Grades 9–10) other resources – 70%, digital – 30%'. (P25).
Sustainability as the reduction of paper use	$N = 9$	'Digital resources reduce paper consumption'. (P6); 'Most assignments for students are digital (in the Moodle environment)'. (P8); 'We reduce paper use by providing digital teaching and learning resources'. (P21).
Critical approach to technologies	$N = 6$	'<...> not the abundance of resources, but high-quality selection and consistent use of resources'. (P27); 'Rather negatively. We do not have as much as we would like'. (P14); 'It is not sufficient at all'. (P17).
Technological infrastructure	$N = 7$	'At the school, alongside new IT equipment, devices with a residual value of 0 euros are still being used'. (P2); 'Almost all classrooms are equipped with interactive whiteboards'. (P4); 'We purchase a few resources and many teachers share them'. (P17).
Lack of policy and strategy	$N = 4$	'There is no specific school-wide policy aimed at aligning sustainability principles ...'. (P3); 'First and foremost, we assess the available financial resources'. (P9).

Table 8. School leaders' conceptions of a 'well-equipped school' from the perspective of teaching and learning materials ($n = 32$).

Category	Number of responses	Illustrative quotes from school leaders (language unedited)
Digital and technological resources	$N = 12$	'It is a school equipped with modern IT equipment and digital content'. (P2); 'A school that has all the necessary modern technologies'. (P11); 'It is a school where there are sufficient modern IT resources'. (P22).
Traditional teaching and learning resources (textbooks, literature)	$N = 10$	'There should be a sufficient number of textbooks, e-textbooks, and methodological materials at the school'. (P6); 'Sets of the latest essential teaching materials and textbooks'. (P4); 'A school where teachers and students are provided with textbooks'. (P10).
Specialized classrooms	$N = 5$	'< ... > laboratory equipment and similar resources are of high quality and accessible'. (P19); 'It has resources for both theoretical and experiential learning (spaces for experiential activities and materials for completing tasks)'. (P23).
Alignment of resources with the general curricula and standards	$N = 4$	'It has most of the resources required for implementing the general curricula'. (P9); 'Methodological materials aligned with the curriculum content'. (P17); 'A school is well-equipped when it has all the prepared programs'. (P14).
Availability and ease of use of resources	$N = 6$	'When a teacher has free access to resources for organizing activities'. (P30); 'Resources that empower the teacher to work effectively and creatively'. (P27); 'When, after conducting a survey of teachers regarding teaching materials, those materials are purchased'. (P13).
Inclusive resources (for students with special educational needs)	$N = 2$	'The more and more diverse resources are needed for certain groups of students (students with special educational needs)'. (P18); '< ... > appropriate and accessible for all students'. (P20).
Purposeful and meaningful use	$N = 4$	'Not the abundance of resources, but high-quality selection and consistent use of resources'. (P26); 'Schools that not only have modern resources but also know how to use them'. (P12).
Orientation toward experiential learning	$N = 3$	'When students can practically apply the knowledge they have acquired using resources'. (P24).
Continuous updating	$N = 2$	'A school equipped with the necessary equipment and digital resources that are continuously updated'. (P25).
Spaces dedicated to students' emotional well-being	$N = 2$	'Provision also includes the physical environment (leisure and relaxation spaces)'. (P1).

resources complement one another. This perspective aligns with Hattie's (2009) insight that the effectiveness of technology depends not on its mere presence, but on how it enables specific teaching strategies. The study indicates that successful integration is most often realized through a '50/50' principle, which helps maintain methodological flexibility.

In contrast, in schools where a clear strategy is lacking, or where technological development is driven primarily by infrastructural or sustainability arguments—such as reducing paper consumption—the balance is more frequently perceived as insufficient or fragmented. According to Fullan (2016), such a situation reflects 'superficial digitalization', in which technical provision outpaces pedagogical readiness. This suggests that educational quality is determined not by the type of resources used, but by their pedagogical meaningfulness, aligned with the level of education, subject specificity, and teachers' competencies. A strategic understanding of sustainability—expressed through the long-term use of equipment (e.g. devices with a residual value of 0 euros)—combined with a critical approach to technology selection, becomes a foundation for a sustainable and high-quality educational process.

The qualitative analysis of the research data reveals that school leaders understand a 'well-equipped school' not merely in terms of material resources, but also in terms of their functional applicability and pedagogical activation (see Table 8). The dominant category is digital and technological resources ($N = 12$), which are identified as a foundational element of a modern school. This trend aligns with Fullan's (2016) argument that digital infrastructure has become a necessary condition for educational change; however, its mere presence does not guarantee a transformation in educational quality.

The second most significant dimension is traditional teaching and learning resources ($N = 10$), including textbook sets and methodological literature. Digitalization should not displace fundamental traditional resources but rather complement them, creating more flexible learning trajectories (Selwyn, 2016). The study highlights a shift from quantitative to qualitative evaluation—respondents emphasize purposeful and meaningful use ($N = 4$) as well as accessibility ($N = 6$). A well-equipped school is described as one in which the teacher has 'free access and resources' to organize activities and is capable of using those resources professionally.

The analysis also reveals attention to experiential learning ($N=3$) and specialized classrooms ($N=5$), which are associated with the practical application of knowledge. Although inclusive resources and spaces dedicated to emotional well-being were mentioned less frequently, their inclusion indicates the emergence of a more holistic understanding of the school environment, in which physical infrastructure is expected to serve the diverse needs of all students.

5. Discussion and conclusion

The research findings confirm that teaching and learning resources function as a key structural link between the declared curriculum and actual learning experiences in the classroom. When material and digital resources do not align with curricular goals, the curriculum tends to be implemented in a fragmented manner, and the principles of competency-based education remain more declarative than genuinely realized in practice. This situation corresponds to the gap described in the literature between the intended and the implemented curriculum, where teaching and learning resources become a limiting rather than enabling factor (Choppin et al., 2021; IBE-UNESCO, 2016; Remillard et al., 2014).

The findings reveal systemic tensions between curriculum ambitions and the material conditions available for social sciences education. Notably, as students progress to higher grades, where content becomes more analytical and conceptual, the level of resource provision does not increase proportionally. In the absence of visual, interactive, and inquiry-supporting materials, learning naturally shifts toward reproductive transmission of content rather than deeper understanding and critical thinking. Although the quantitative data reveal national-level patterns, the qualitative findings also suggest that resource-related challenges vary across school contexts. School leaders representing different school types and programme structures described similar financial constraints but emphasized different priorities depending on the educational level they served. For example, schools providing upper secondary education more frequently highlighted the need for examination-related resources, whereas schools with primary education programmes emphasized basic curriculum implementation and age-appropriate learning materials. These findings suggest that resource allocation should be understood not only as a national policy issue but also as one shaped by institutional context and programme profile.

The qualitative analysis showed that decision-making logic in schools is dominated by a 'minimum necessity' strategy: priority is given to resources that formally enable curriculum implementation, while more innovative or methodologically significant materials are often postponed due to limited financial capacity. This practice is consistent with findings in the literature suggesting that resource allocation is often influenced by institutional priorities associated with measurable educational outcomes rather than by longer-term investments in learning conditions and curriculum development (Organisation for Economic Co-operation and Development [OECD], 2017; Fullan, 2016). As a result, teaching and learning resources become not only a pedagogical issue but also a managerial one, where educational goals are continuously negotiated in relation to financial constraints. These findings also reflect broader international debates on competence-based curriculum reforms, where ambitious curricular goals are frequently introduced without sufficient alignment between pedagogical expectations and schools' material capacities. The study suggests that curriculum implementation cannot be understood solely as a pedagogical process, but also as a question of educational governance, resource allocation, and institutional prioritization within contemporary school systems.

Beyond confirming previous research on the importance of teaching and learning resources for curriculum implementation, this study extends the existing literature in several ways. First, the findings suggest that teaching and learning resources in competence-based education should be understood not merely as supportive pedagogical tools, but as mediating structural mechanisms that actively shape how curriculum reforms are translated into classroom practice. The Lithuanian case demonstrates that when resource provision is uneven or insufficient, schools tend to adopt a 'minimum necessity' implementation logic, prioritizing formal curriculum compliance over deeper competency-oriented learning. This finding refines existing curriculum implementation literature by showing that resource allocation practices themselves become part of the curriculum enactment process rather than an external condition for it.

The tension identified in the study between the declared principle of equal provision across subjects and the perceived shortage of resources in social sciences reveals a structural imbalance linked to the concept of disciplinary hierarchy discussed in the literature, whereby priority is often given to subjects

associated with standardized achievement and examinations, while other areas experience a relative deficit of resources (Apple, 2004; Bleazby, 2015). The study also contributes to discussions on educational equity by demonstrating that equal distribution of resources across subjects does not necessarily ensure equitable conditions for competency development. Subjects differ in their methodological and epistemological resource demands; therefore, formally equal provision may reproduce hidden disciplinary inequalities.

School leaders' understanding of a well-equipped school reflects a significant qualitative shift: emphasis is placed not only on the quantity of resources but also on their accessibility, classroom activation, and alignment with curriculum content. A balanced integration of digital and other resources is highlighted, consistent with research showing that the impact of technology on learning depends on pedagogical meaningfulness rather than on the mere presence of technology (Hattie, 2009; Selwyn, 2016). This suggests that the core issue lies not only in the quantity of provision but also in the lack of a systemic approach to resource integration, professional support for teachers, and strategic planning. From a broader perspective, this raises questions about how competence-based reforms are operationalized in practice when schools are expected to simultaneously ensure innovation, inclusion, digitalization, and high academic achievement under conditions of limited resources. The findings indicate that curriculum reforms may unintentionally reproduce inequalities between subject areas when resource allocation mechanisms are not sufficiently sensitive to disciplinary differences and methodological demands.

The findings suggest that the current level of provision of teaching and learning resources in Lithuanian schools may present challenges for the full implementation of competency-based education in social sciences subjects. In particular, shortages were identified in resources intended to support analysis, inquiry, interpretation, and the development of spatial and historical thinking, as well as resources designed to address diverse student needs. The qualitative findings further indicate that school-level decisions on resource acquisition are frequently shaped by immediate needs and financial constraints, while the principle of equal distribution across subjects does not necessarily result in resource provision that reflects the specific pedagogical requirements of different subject areas.

The Lithuanian case analyzed in this study illustrates challenges that are increasingly visible internationally in competence-based education reforms: while policy frameworks emphasize deeper learning, inquiry, and interdisciplinary competencies, schools often continue to operate within resource allocation systems oriented toward minimum compliance, standardized assessment pressures, and financial constraints. This tension highlights the importance of viewing resource provision as an integral component of curriculum reform rather than as a secondary technical issue.

In order to reduce the gap between curricular aspirations and actual learning conditions, it is essential to move toward a strategically planned, subject-specific, and quality-oriented model of resource provision, in which material conditions are systematically aligned with pedagogical goals and schools' educational capacities. The findings of this study suggest that resource provision should be treated not as a secondary technical aspect of schooling, but as a central component of curriculum enactment and competency-based education reform.

6. Limitations and directions for future research

This study has several limitations that should be considered when interpreting the findings. First, although the research combines quantitative and qualitative data, the sample is limited to a specific national context and reflects the perspectives of school leaders rather than the full range of stakeholders involved in the educational process. While school leaders provide an institutional and strategic perspective on resource allocation, their views may differ from those of teachers, who directly use teaching materials in classroom practice, and from students, who experience these resources in everyday learning. Consequently, the qualitative findings primarily reflect institutional decision-making and should not be interpreted as representing classroom-level experiences or practices. As a result, the findings cannot be fully generalized to other educational systems with different funding models, policy frameworks, or curricular structures. In addition, the reliance on self-reported data introduces the possibility of subjective bias, particularly regarding perceptions of adequacy, priorities, and decision-making processes related to teaching and learning materials.

Another limitation lies in the focus on availability and perceived sufficiency of teaching materials rather than on direct classroom observations of how these resources are used in practice. While the study highlights structural conditions for competency-based education, it does not systematically examine how differences in material provision translate into specific pedagogical practices or student learning outcomes. Accordingly, although the findings identify resource-related conditions that may facilitate or constrain curriculum implementation, the study does not provide direct evidence of the effects of resource availability on teaching effectiveness, student achievement, or other educational outcomes.

Future research could address these limitations by extending the scope of participants to include teachers, students, and policymakers, thereby enabling a more comprehensive understanding of how material conditions interact with classroom practice and learner experience. Future studies could also compare different school contexts (e.g. primary, lower secondary, and upper secondary schools or schools with different organizational profiles) to explore how institutional characteristics shape resource allocation priorities and implementation strategies. Comparative studies across different countries or educational systems would help identify how various funding and governance models influence the distribution and pedagogical use of teaching materials. Longitudinal research would also be valuable in tracking how investments in teaching and learning resources affect instructional practices and student competencies over time, particularly in the context of ongoing curriculum reforms.

Author contributions

CRedit: **Jovita Ponomariovienė**: Methodology; **Simonas Šabanovas**: Methodology; **Asta Ranonytė**: Investigation.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Jovita Ponomariovienė  <http://orcid.org/0000-0002-2831-5296>

Simonas Šabanovas  <http://orcid.org/0000-0002-8216-0176>

Asta Ranonytė  <http://orcid.org/0009-0002-8205-7571>

Data availability statement

The datasets used and analyzed in the current study are available from the corresponding author upon reasonable request.

References

- Abad, G., & Hattie, J. (2025). Teachers as designers: The role of instructional materials in shaping professional agency. *Frontiers in Education*, 10, 1577721. <https://doi.org/10.3389/feduc.2025.1577721>
- Andres, J. P., Barrios, A. J. R., Eleazar, K. S., Fruelda, L. M. D., Gansit, J-J M., Nolia, M. I., Panganiban, L. A. E., Quiton, A. S. S., Torres, R. M., & Galay-Limos, J. A. (2025). Instructional materials, class engagement, and academic performance of Bachelor of Elementary Education students in Divine Word College of San Jose. *International Journal of Research Studies in Education*, 14(11), 77–89. <https://doi.org/10.5861/ijrse.2025.25508>
- Apple, M. W. (2004). *Ideology and curriculum* (3rd ed.). RoutledgeFalmer.
- Azzahra, S. F. (2025). The role of chemical teaching aids and learning resources in building students' knowledge construction. *Asian Research Journal of Arts & Social Sciences*, 23(10), 220–235. <https://doi.org/10.9734/arjass/2025/v23i10814>
- Bacon, K. (2018). *Curriculum integration*. Marino Institute of Education. https://ncca.ie/media/3499/seminar-two_bacon-paper.pdf
- Ball, S. J. (2003). The teacher's soul and the terrors of performativity. *Journal of Education Policy*, 18(2), 215–228. <https://doi.org/10.1080/0268093022000043065>
- Baškarada, S. (2014). Qualitative case study guidelines. *The Qualitative Report*, 19(40), 1–18. <https://doi.org/10.46743/2160-3715/2014.1008>
- Biesta, G. (2010). *Good education in an age of measurement: Ethics, politics, democracy*. Paradigm Publishers.

- Biesta, G. (2015). What is education for? On good education, teacher judgment, and educational professionalism. *European Journal of Education*, 50(1), 75–87. <https://doi.org/10.1111/ejed.12109>
- Bleazby, J. (2015). Why some school subjects have a higher status than others: An analysis of the social-realist and critical-theoretic perspectives. *Oxford Review of Education*, 41(5), 671–689. <https://doi.org/10.1080/03054985.2015.1090966>
- Bouckaert, M. (2019). Current perspectives on teachers as materials developers: Why, what, and how? *RELC Journal*, 50(3), 439–456. <https://doi.org/10.1177/0033688218810549>
- Choppin, J., Roth McDuffie, A., Drake, C., & Davis, J. (2021). Curriculum ergonomics: Conceptualizing the interactions between curriculum materials and teachers. *Journal for Research in Mathematics Education*, 52(2), 114–149. <https://doi.org/10.5951/jresmetheduc-2020-0182>
- Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications.
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.
- Coburn, C. E. (2001). Collective sensemaking about reading: How teachers mediate reading policy in their professional communities. *Educational Evaluation and Policy Analysis*, 23(2), 145–170. <https://doi.org/10.3102/01623737023002145>
- Cuyacot, E., & Cuyacot, M. (2022). Competency-based education: Learner's new process for success. *International Journal of Research Studies in Education*, 11(4), 89–101. <https://doi.org/10.5861/ijrse.2022.165>
- Davis, E. A., & Krajcik, J. S. (2005). Designing educative curriculum materials to promote teacher learning. *Educational Researcher*, 34(3), 3–14. <https://doi.org/10.3102/0013189X034003003>
- Drake, S. M., & Reid, J. (2018). Integrated curriculum as an effective way to teach 21st-century capabilities. *Asia Pacific Journal of Educational Research*, 1(1), 31–50. <https://doi.org/10.30777/APJER.2018.1.1.03>
- Ordu, U. B.-A. (2021). The role of teaching and learning aids/methods in a changing world. In S. M. El-Tigi (Ed.), *New challenges to education: Lessons from around the world* (pp. 210–216). Nova Science Publishers.
- Epstein, J. L. (2018). *School, family, and community partnerships: Preparing educators and improving schools* (2nd ed.). Routledge.
- Etzel, J. M., Heinze, A., Neumann, K., Bernholt, S., Retelsdorf, J., Köller, O., & Nagy, G. (2025). What we learn in school, we learn for life. *Contemporary Educational Psychology*, 80, Article number: 102336. <https://doi.org/10.1016/j.cedpsych.2025>
- European Commission. (2020). *Digital education action plan (2021–2027): Resetting education and training for the digital age*. Publications Office of the European Union. <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52020DC0624>
- Fasinro, K. S., Akinkuotu, F. A., & Aina, J. O. (2024). Curriculum implementation: Challenges and the prospect of education resource centres. *African Educational Research Journal*, 12(1), 1–5.
- Fitria, E., Muslim, S., & Solihatin, E. (2020). The use of educational resources in early childhood learning. *International Journal of Innovation, Creativity and Change*, 12(1), 583–590.
- Fullan, M. (2016). *The new meaning of educational change*. Teachers College Press.
- Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.
- Hattie, J. (2023). *Visible learning: The sequel*. Routledge.
- IBE-UNESCO. (2016). *What makes a good quality curriculum?* <https://unesdoc.unesco.org/ark:/48223/pf0000243975>
- Jannah, R., & Yaumi, M. (2024). Utilization of learning space as a learning resource center. *Al-Iftah: Journal of Islamic Studies and Society*, 4(1), 63–77. <https://doi.org/10.35905/aliftah.v4i1.9334>
- Jonnaert, P., Masciotra, D., Barrette, J., Morel, D., & Mane, Y. (2020). From competence-based curriculum to competence-based learning. *Prospects*, 49, 35–48. <https://doi.org/10.1007/s11125-019-09479-4>
- Juwariah, S., & Aprima, D. (2025). The effectiveness of three-dimensional solar system teaching aids. *Journal of Innovation and Research in Primary Education*, 4(4), 3810–3818. <https://doi.org/10.56916/jirpe.v4i4.2556>
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.
- King, N., & Horrocks, C. (2010). *Interviews in qualitative research*. SAGE Publications.
- Lama, S. K. (2024). *The use of teaching materials for students' engagement and positive learning outcome: A systematic review*. NELTA ELT Forum.
- Leithwood, K., Harris, A., & Hopkins, D. (2020). Seven strong claims about successful school leadership revisited. *School Leadership & Management*, 40(1), 5–22. <https://doi.org/10.1080/13632434.2019.1596077>
- Lee, B. N. (2023). Digital tools & inquiry-based learning in history education. *Muallim Journal of Social Science and Humanities*, 7(4), 78–88. <https://doi.org/10.33306/mjssh/255>
- Lietuvos Respublikos švietimo, mokslo ir sporto ministerija. (2022). *Bendrosios programos* [General curricula]. <https://www.emokykla.lt>
- Lietuvos Respublikos švietimo, mokslo ir sporto ministerija. (2024). *Ikimokyklinio, priešmokyklinio ir bendrojo ugdymo programos įgyvendinančių mokyklų švietimo aprūpinimo standartas* [Standard for educational provision in schools implementing pre-primary, pre-school and general education programmes]. <https://www.e-tar.lt>
- Lietuvos Respublikos Vyriausybė. (2012). *Lietuvos pažangos strategija "Lietuva 2030"* [Lithuania's progress strategy "Lithuania 2030"]. <https://www.lietuva2030.lt>

- Momen, M., & Aich, T. (2025). Addressing the challenges of using teaching aids in primary school classrooms. *International Journal of Research and Innovation in Social Science*, 9(10), 4732–4741. <https://doi.org/10.47772/IJRISS.2025.910000390>
- Mwita, E., & Onyango, J. M. (2022). Availability and use of instructional resources on the implementation of the competency-based curriculum by Grades 1, 2 and 3 in public primary schools in Migori County, Kenya. *Journal of Advances in Education and Philosophy*, 6(9), 484–491. <https://doi.org/10.36348/jaep.2022.v06i09.006>
- Nafisah, N., Pahrudin, A., & Rahmi, R. (2025). Challenges and Strategies: Curriculum Implementation in 21st Century Learning. *Ensiklopedia: Jurnal Pendidikan dan Inovasi Pembelajaran Saburai*, 5(01), 90–98. <https://doi.org/10.24967/esp.v5i01.4050>
- Organisation for Economic Co-operation and Development. (2017). *The funding of school education*. OECD Publishing. <https://doi.org/10.1787/9789264276147-en>
- Organisation for Economic Co-operation and Development. (2020). *Curriculum (re)design: A series of thematic reports from the OECD Future of Education and Skills 2030 project*. OECD Publishing. <https://www.oecd.org/en/about/projects/future-of-education-and-skills-2030.html>
- Organisation for Economic Co-operation and Development. (2021). *Teachers and technology*. OECD Publishing. <https://doi.org/10.1787/2f3a6b0c-en>
- Pia, K. F. (2015). Barriers in teaching–learning process of mathematics at secondary level: A quest for quality improvement. *American Journal of Educational Research*, 3(7), 822–831.
- Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). SAGE Publications.
- Ponomariovienė, J., & Jakavonytė-Staškuvienė, D. (2022). Developing general and subject competences of primary school pupils in the context of integrated education: The case of one Lithuanian School. *Journal of Education Culture and Society*, 13(2), 659–680. <https://doi.org/10.15503/jecs2022.2.659.680>
- Ponomariovienė, J., & Jakavonytė-Staškuvienė, D. (2025). Manifestation of learner agency in primary education: Goal setting, implementation, and reflection in the context of competency-based learning. *Behavioral Sciences (Basel, Switzerland)*, 15(8), 1116. <https://doi.org/10.3390/bs15081116>
- Priestley, M., Biesta, G., & Robinson, S. (2015). *Teacher agency: An ecological approach*. Bloomsbury Academic.
- Remillard, J. T., Herbel-Eisenmann, B. A., & Lloyd, G. M. (2014). Mathematics teachers' interactions with curriculum materials. *ZDM Mathematics Education*, 46, 673–689. <https://doi.org/10.1007/s11858-014-0602-1>
- Redecker, C. (2017). *European framework for the digital competence of educators: DigCompEdu*. Publications Office of the European Union.
- Rozina, M. (2016). *Didaktinės priemonės ir jų panaudojimas ugdymo procese* [Didactic tools and their use in the educational process]. *Pedagogika*, 123(1), 45–55.
- Saye, J. W., & Brush, T. (2006). Teachers' strategies for supporting inquiry in social studies. *Theory & Research in Social Education*, 34(2), 183–212. <https://doi.org/10.1080/00933104.2006.10473300>
- Samodro, P., Rahmatunnisa, M., & Endyana, C. (2020). Environmental carrying capacity study in spatial utilisation in the North Bandung area. *Jurnal Wilayah Dan Lingkungan*, 8(3), 214–229. <https://doi.org/10.14710/jwl.8.3.214-229>
- Shulman, L. S. (2005). Signature pedagogies in the professions. *Daedalus*, 134(3), 52–59. <https://doi.org/10.1162/0011526054622015>
- Selwyn, N. (2016). *Education and technology: Key issues and debates*. Bloomsbury Academic.
- Spillane, J. P. (2006). *Distributed leadership*. Jossey-Bass.
- Scott, C. L. (2015). *The futures of learning 1: Why must learning content and methods change in the 21st century?* UNESCO Education Research and Foresight Working Papers, No. 13. UNESCO.
- Sterling, S. (2010). Learning for resilience. *Environmental Education Research*, 16(5–6), 511–528. <https://doi.org/10.1080/13504622.2010.505427>
- Susilawati, D. E., Okianna, & Utomo, B. B. (2020). The influence of learning resources on the effectiveness of the learning process in economics at Wisuda High School. *Jurnal Pendidikan Dan Pembelajaran Khatulistiwa*, 4(6), 1–12.
- Trahorsch, P., Bláha, J. D., & Chytrý, V. (2019). Comparative analysis of the quality of visuals in geography textbooks for ISCED 1 and ISCED 2 levels of education. *Review of International Geographical Education Online*, 9(2), 264–283. <https://doi.org/10.33403/rigeo.509255>
- UNESCO. (2017). *Education for sustainable development goals*. UNESCO Publishing.
- Voogt, J., Fisser, P., Good, J., Mishra, P., & Yadav, A. (2018). Technological pedagogical content knowledge – A review of literature. *Journal of Computer Assisted Learning*, 34(3), 239–256.
- Wineburg, S., & Reisman, A. (2015). Disciplinary literacy in history. *Journal of Adolescent & Adult Literacy*, 58(8), 636–639. <https://doi.org/10.1002/jaal.410>
- Žydžiūnaitė, V., & Sabaliauskas, S. (2017). *Kokybiniai tyrimai: Principai ir metodai* [Qualitative research: Principles and methods]. Vaga.