

Country report: Dissemination of teaching and learning materials

Deliverable 4.1



This work is (**part of**) **Deliverable 4.1** of the Erasmus+ project [EQui-T](#) (ERASMUS-EDU-2022-PEX-TEACH-ACA 101104449)

Delivery date: February 2026

Lead partner for this document:

University of South-Eastern Norway – Siddiq, Fazilat; Cruaud, Caroline.

The ideas presented in this document are a result of the collaboration of the following organisations and people:

Norway University of South-Eastern Norway - Fazilat Siddiq, Caroline Cruaud	Spain University of Granada - María Luisa Rodríguez Almendros, María José Rodríguez Fortiz
Austria University of Graz - Barbara Gasteiger-Klicpera, Jessica Berger, Annalisa La Face PPH Augustinum - Daniela Ender, Martina Kalcher PH Steiermark - Caroline Breyer, Stella Schatz	Estonia University of Tallinn - Linda Hellene Sillat, Kairit Tammets Italy University of Padova - Sara Santilli, Maria Cristina Ginevra

The project EQui-T has been funded with support from the European Commission under the Erasmus+ Teacher Academy Programme.



**Co-funded by
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Partners



University of
South-Eastern Norway



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DI PADOVA



UNIVERSIDAD
DE GRANADA



Keywords

Digital resources; Inclusive education; Open educational resources; Pre- and in-service teachers; Primary and secondary education.

Abstract

This report is part of the EQui-T project (European Quality Development System for Inclusive Education and Teacher Training) and examines the dissemination and use of open educational resources (OER) for teaching and learning across the five partner countries: Austria, Estonia, Italy, Norway, and Spain. The main objective of the EQui-T project is to improve teaching quality in inclusive settings by empowering teacher trainers and pre- and in-service teachers to identify, adapt, and share OER.

The study employed a mixed-methods research design, combining survey data of 345 teachers with insights from 31 semi-structured interviews. Using descriptive statistics and directed content analysis, the report synthesizes findings on teachers' understanding of OER, motivation and reasoning for using OER/digital resources, evaluation strategies, and the barriers encountered when navigating digital educational landscapes.



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Abstract

Key findings reveal that teachers search for and use digital teaching and learning resources primarily to meet their students' needs and engage them. Further, we identified a notable contrast: while digital resources are used extensively to support inclusive education and student motivation, the teachers show limited understanding of OER, often overlooking the legal frameworks of copyright and licenses. The teachers demonstrate high professional autonomy, prioritising pedagogical relevance, visual appeal, and peer recommendations over formal metadata, criteria or frameworks when evaluating quality of the resources they identify. However, in this regard the teacher note that they are not aware of any such framework to evaluate resource quality.

Teachers in our data report that they regularly adapt or modify resources to meet diverse student needs, yet public sharing is rare due to, e.g., time constraints, lack of confidence and knowledge, and technical hurdles. Furthermore, platforms are often criticized for poor navigation, paywalls, and a lack of effective search filters for inclusive materials.

The report concludes that technical infrastructure alone is insufficient for a truly inclusive ecosystem. There is an urgent demand for structured professional development focusing on OER, licensing, and the use of different tools such as large language model for content creation. Additionally, national educational authorities should support developing high-quality official repositories with intuitive designs to support teachers in providing more tailored teaching and learning experiences for all students.



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1. Extended summary

Introduction

This report is part of the EQui-T (European quality development system for inclusive education and teacher training) project¹, which aims to improve teaching quality in an inclusive European context by empowering educators to identify, create, and share high-quality inclusive Open Educational Resources (OER).

The project defines OER according to the UNESCO (2019): “learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others”. Inclusive education aims to empower every person, independent of their abilities, background (e.g., language, culture, religion, gender), literacy level, etc., to participate in society actively and have a high quality of life. This means that “education systems must provide a personalized educational response, rather than expecting the student to fit the system” (Ainscow, 2020, p. 8). Thus, inclusive pedagogy is about “being student-centered, avoids making assumptions about students, provides opportunities for interaction between teacher and students and with peers, uses a variety of learning and teaching strategies, and creates opportunities for learning to become more relevant” (Thomas, 2021).

By focusing on the intersection of OER and inclusive education, the EQui-T project seeks to provide equitable access to learning for all students, independent of competence level, physical or psychological challenges, background, etc. Several activities have been carried out to reach these objectives, such as a comprehensive review of the literature on inclusive OER, and the development of a framework along with a criteria catalogue weaving the themes of inclusive education and OER together. In addition, a teacher training course for pre- and in-service teachers including modules on digital competence, inclusive education, lesson planning, and OER has been developed and piloted. This report is another result from the project and presents findings about the dissemination of digital learning resources, through five country reports about teachers’ selection, creation and sharing of OER.

Methodology

The report uses both survey and interview data from the five partner countries: Austria, Estonia, Italy, Norway, and Spain. The survey and interview instruments have been developed, reviewed,

¹ <https://equi-t-academy.eu/en/>



piloted and finalised within the project, involving all partner countries at different stages of the development. Further, the final versions of the instruments in English have been translated to the local languages and data were collected by the partner countries. Next, the interviews (and open-ended responses in the survey) have been transcribed and translated into English.

The team responsible for this report has coded and analysed all data to reduce bias. However, the partner countries have reviewed and revised the report to provide contextual information and assure reliability and validity of the findings.

Across the five countries, 345 pre- and in-service teachers responded to the survey. The survey covers themes such as understanding of OER, use of digital resources, perceived usefulness of digital resources, and platforms used. Descriptive statistics were used to analyse the data (Mujis, 2004). Further, 31 semi-structured interviews were conducted. The survey and interview themes are aligned to a great extent, and thus the interviews aim at providing deeper insights into the teachers' reasoning and choice-making processes. Directed content analysis was applied to the interviews to ensure consistency and minimize bias.

Key findings across the participating countries

Even though the five participating countries differ across several aspects, such as size, population, school and educational policy, state of digitalisation and inclusion, we identify similar patterns across data when it comes to teachers' understanding of OER and use of digital resources.

Understanding of OER and licensing

Across all five countries, there is a significant gap between the use of digital resources and the conceptual understanding of OER. While many teachers report familiarity with the term "OER" in the survey, interviews reveal confusion, with many educators equating OER simply with any digital resource they find online. Furthermore, there is a widespread lack of awareness regarding licenses (such as Creative Commons) - teachers often take a pragmatic approach, using materials that meet their pedagogical needs without regard for legal or copyright frameworks. These findings are in line with previous research (Baas et al., 2019; Farrow et al., 2024).

Motivation and reasoning for using digital resources

Teachers across our data clearly express that their students' varied needs are the primary driver for using digital resources. In other words, they aim at providing inclusive education. This finding is consistent across the survey data and is further detailed in the interviews in which the teachers provide examples of how they go about to find, adapt and use digital resources to meet students'

needs such as different competence levels, interests, language and cultural background, physical and psychological challenges.

Second, other vital reasons for using digital tools are to: increase student motivation and engagement through interactive and visually appealing content; facilitate differentiation by adapting the material, e.g., simplifying language, adding visual aids, read-over text options, or adjusting difficulty levels; track learning processes more effectively than with traditional physical textbooks.

Assessment of quality of resources and platforms

Teachers demonstrate a high degree of professional autonomy when evaluating resources, prioritizing pedagogical relevance, and peer recommendations over formal frameworks or metadata. While they use a vast array of platforms (over 40 unique sites per country), common hindrances include paywalls, excessive advertising, and poor search filters. Educators express a strong preference for platforms that are intuitive, updated regularly, and hosted by trusted institutions.

Creation and sharing practices

Most teachers frequently adapt or modify existing resources to fit their classroom context, but the creation of resources from scratch is less common. Sharing is largely informal, occurring within local school networks or close professional circles. In this regard, data from the Estonian teachers differ – showing a notable exception: they show a higher rate of sharing on national platforms.

The role of Artificial Intelligence (AI) and need for professional development

The use of AI (e.g., ChatGPT) is emerging as a tool for generating ideas, simplifying texts, and creating differentiated materials. However, many teachers remain cautious, citing a lack of training and concerns about the accuracy of AI-generated content. Yet, teachers are showing an interest in professional development to learn how to use AI in their teaching. Along with interest in AI training, they also highlight several other areas, such as licensing and copyrights and how to develop and share OER, digital literacy, and inclusive education. Moreover, they have clear ideas of how to provide professional development that fit the teacher profession, e.g., in-school training – with all faculty – online-training in the afternoon or asynchronous to lower effect on their students and need for substitute teachers.

Conclusions and recommendations

Working on this report, as shown above, we have identified several critical aspects with regard to the use and evaluation of OER. First, teachers report a widespread use of digital teaching and learning

resources and highly value their use to suit their students' needs. However, teachers have limited knowledge regarding what OER are and confuse these with digital resources in general – overlooking licensing and copyrights. Second, they revise, adapt, and develop teaching and learning resources, yet seldomly share. The latter is explained in terms of lack of knowledge on how and where to share, and lack of confidence. Third, the teachers report a number of challenges and hindrances related to platforms. These include lack of information such as metadata, search filters, complex navigation systems, paywalls, advertisements, and little flexibility in adapting the resources. Taken together, our findings show that the teachers use and value OER/digital resources, but lack essential competence, support and systemic structures (e.g., relevant educational platforms).

To meet some of these shortcomings, we suggest that: 1. teachers are provided professional development including practical hands-on training on issues such as applying and evaluating licenses and copyrights, evaluating OER quality, developing and sharing OER, and utilizing AI and other tools for content creation; 2. national or local educational authorities consider providing (or improving in cases where such repositories already exist) user-friendly, high-quality repositories that provide clear search filters, metadata and possibilities for adaptation of the materials for inclusive teaching; and 3. schools and educational systems need to foster collaborative environments where teachers are supported in sharing and developing open inclusive resources.



2. Introduction

Teachers and educators have across times collaborated, developed and shared educational resources. However, with increasing digitalisation of and in education, the access to educational resources and opportunities to reach others interested in educational resources have increased. This more or less professional community of practice is now spread across an array of activities involving multiple stakeholders, such as commercial and non-commercial developers of educational materials, policy makers or platform owners, and developers. The concept *Open Educational Resources (OER)* covers a part of the resources shared in these communities, and is defined as “learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others” (UNESCO, 2019). In other words, OER come with an open license, emphasising that it respects the intellectual property rights of the copyright owner and grants others the rights to access, re-use, adapt, modify, repurpose, and redistribute. Hence, OER provide opportunities for effective, equitable and inclusive access to teaching- and learning materials, “opening the possibilities for OER to be accessible anytime and anywhere for everyone, including individuals with disabilities and individuals coming from marginalized or disadvantaged groups” (UNESCO, 2019). Moreover, research has shown that OER can support the diverse needs of individual learners, promote gender equality and incentivize innovative pedagogical, didactical and methodological approaches (Bossu et al., 2012; Farrow et al., 2024). Therefore, focusing on the intersection of OER and inclusive education is meaningful and can potentially provide us with important insights into how educational systems can better cater for all students through the use and development of open inclusive educational resources.

This report is part of the European quality development system for inclusive education and teacher training (EQui-T) project, financed by the European commission under the Erasmus+ Teacher academies program. EQui-T is a collaborative project including five countries, namely Austria, Estonia, Italy, Norway and Spain.

The main aim of the EQuiT project is to enhance high quality teaching in an inclusive European context by enabling teacher trainers and pre- and in-service teachers to identify, create and share high-quality open inclusive educational resources, and by promoting transnational collaboration and exchange of good practices.

In this project, we take a broad understanding of inclusive education in which *inclusion* aims to empower every person, independent of their abilities, language, culture, religion, gender, media/digital education, and literacy level, to participate in society actively and have a high quality of life. Inclusive educational settings grant everybody the right to be part of a high-quality education



system. “This means that education systems must provide a personalized educational response, rather than expecting the student to fit the system” (Ainscow, 2020, p. 8). All students receive the attention, flexibility, remediation, and adjustments they need in a supporting social environment. The students’ acquisition of competencies benefits from the existing, lived, and experienced diversity in educational settings. Read more about the EQui-T project’s understanding of inclusion on our website².

As part of the EQuiT project, several activities have been carried out to reach our objectives. Among others, we have conducted a comprehensive review of literature on inclusive open educational resources and developed a framework weaving themes of *inclusive education* and *open educational resources* together. As an output from this framework, we created a criteria catalogue that can be applied by teachers when using or developing inclusive open teaching and learning materials (WP2)³. Further, the project includes the development of a teacher training course to promote pre- and in-service teachers’ competence in these areas, including modules on digital competence, inclusive education, lesson planning and open educational resources (WP3).

Finally, in this document, we present country reports from each of the five participating countries focusing on how and why OER are used, how teachers evaluate the quality of OER, and to what extent they develop and share such resources. Moreover, popular platforms for sharing, disseminating, and retrieving teaching and learning materials are identified for each country. Finally, we provide a synthesis across the five countries presenting common themes and issues, with concluding remarks on how educational systems can support use of OER in the realm of inclusive education. The report builds on survey- and interview data from each country, along with theoretical and practical perspectives from research and country-experts. Moreover, this report builds on and extends the previous reports⁴ from the EQui-T project.

This report can be read as a continuous report following the chapters or each chapter as stand alone. However, the introduction and method section could be relevant for benefitting fully from the reading of each country's report.

² EQui-T website: <https://equi-t-academy.eu/en/about-the-project-equi-t/our-understanding-of-inclusion/>

³ [Criteria Catalogue - EQui-T](#)

⁴ [Publications - EQui-T](#)

3. Method

3.1 Data sources

This report is based on both quantitative and qualitative methodological approaches, namely survey and interview data. As presented in the Introduction section, the EQui-T project is concerned with open inclusive educational resources. It aims at bringing two related yet historically different fields – *Inclusive education* and *Technology-enhanced learning* together. Therefore, we could not only rely on existing research, nor use interviews or surveys as sole data sources. Building on existing knowledge from each field, we have developed and piloted a survey to get an overview of teachers’ use of open inclusive educational resources. The survey (see Appendix A) has been translated to the main language spoken in each partner country, and data was collected during autumn 2025. Further, we developed an interview guide to get deeper insights into the reasonings and explanations behind the teachers’ choices. The themes in the survey and interviews were developed to complement each other, and to provide us with an overview yet also a deeper understanding of certain patterns and responses in the survey.

The interview guide (see Appendix B) for semi-structured interviews was developed, piloted, and translated to the partner country's languages. Each partner country conducted 6-10 interviews each, these were recorded, transcribed and translated to English. One team from the project analysed all data and mainly wrote this report. This choice was made for lowering bias.

However, the partners from each country have reviewed and contributed with country-specific insights and clarifications throughout the writing process and completed report.

Country	Survey, N	Interview, N
Austria	108	8
Estonia	111	0
Italy	68	7
Norway	27	7
Spain	29	9
Total	345	31

Table. 1 Overview of the five participating countries, and the number of survey- and interview respondents.

3.2 Data sources and analysis

3.2.1 Survey

The survey was conducted between July and November 2025 in each country. A total of 345 pre- and in-service teachers have responded to the survey. Themes such as understanding of OER, use and sharing of digital learning resources, use and evaluation of platforms were investigated. The survey results were analysed by the authors of this report using descriptive statistics (Mujis, 2004). In the following table, some more details about the data from each country are presented.

Country	N	Gender	Pre- or in-service teacher	Age range
Austria	110	94 F; 14 M; 1 Oth; 1 no answer	10 in; 64 pre; 30 both; 6 Oth	18-25: 71 26-45: 33 46-65+: 6
Estonia	68	40 F; 5 M; 3 no answer	48 in; 7 both; 13 Oth	18-25: 0 26-45: 28 46-65+: 40
Italy	111	72 F; 11 M; 1 Oth	8 in; 29 pre; 36 both; 38 Oth	18-25: 31 26-45: 67 46-65+: 13
Norway	27	21 F; 2 M; 2 Oth	16 in; 1 pre; 1 both; 9 Oth	18-25: 0 26-45: 14 46-65+: 13
Spain	29	20 F; 9 M	25 in; 2 pre; 2 Oth	18-25: 3 26-45: 9 46-65+: 17
Total	345	247 F; 41 M; 4 Oth; 4 no answer	107 in; 96 pre; 74 both; 68 Oth	18-25: 105 26-45: 151 46-65+: 89

Table 2. An overview of the number of respondents in each country and gender distribution.

Note. F = female; M = male; Oth = other; in= in-service teachers; pre = pre-service teachers; both = in teacher training but already teaching classes.

3.2.2 Interviews

Each partner country has conducted interviews in the local language, and transcribed and translated these into English. The interviews lasted in average 45 minutes (35-65 minutes). Next, all the transcribed and translated interviews have been analysed by one team responsible for this report. We conducted Directed content analysis (Hsieh & Shannon, 2005), building on the key themes in the

interviews and aligned with the survey. The aim was to discover how the teachers understand the concept of OER, what type of educational resources they search for and why, which platforms they use when searching for resources and whether there are any hindrances or obstacles related to platforms they use, how they evaluate the quality of resources, to what extent they modify, develop or share such materials and to what extent they express a need for professional development within this domain. Each interview has been read by at least two independent researchers and coded in accordance with the key themes in the interview guide. Firstly, the codes and how to interpret them were decided within the team. Secondly, when doubt or disagreement occurred, this was solved through discussion until consensus was reached.

Country	N	Pre- or in-service teachers	Experience teaching (in years)
Austria	8	8 in-service	1-23
Italy	7	7 in-service	1,5-30
Norway	7	7 in-service	5-25
Spain	9	2 pre-service 7 in-service	1-37

Table 3. An overview of interview participants.

3.3 How to read this report

In the following five chapters (chapter 4-8), we briefly present the country report of each partner country. In each chapter we first provide a brief overview of the educational system, e.g., public/private schools, compulsory education, state of digitalisation and state of inclusion. Secondly, we present the main result coming from our analysis of the interview and survey data for the country focusing on how and why teachers search for teaching and learning materials, their understanding of open online educational resources, which platforms are used, how they assess the quality of the resources and platforms, whether they adapt, develop and share their own educational resources and whether they perceive a need for further professional development in this area.

In chapter nine, we present a synthesis across the five countries, providing insights into similarities and differences, highlighting issues relevant for all educational systems. Moreover, the main results are discussed in light of practice and literature. Finally, in the last chapter we provide conclusion and key implications.

4. Austria

Austria is a landlocked, federal parliamentary republic in Central Europe with a population of 9.2 million (Statistik Austria, 2024)⁵. Compulsory education⁶ in Austria is from grade 1-9. Moreover, in the school year 2024/2025, 75.955 teachers and 626242 students (Statistik Austria)⁷ were part of the Austrian compulsory schools.

As part of the ‘Digital Learning’ device initiative, 5th grade pupils at participating schools are equipped with a digital device (1 device per student). This initiative is part of the 8-point plan for digitisation, which aims to build digital skills and targets the comprehensive implementation of digitally supported teaching and learning.

Since the school year 2022/23, ‘digital literacy’ has been a compulsory subject in grades 5 to 8 (at least 1 hour per week) with a focus on technology, society and interaction.

Digital literacy⁸ is also anchored in the primary school curriculum. The focus is on media education and reflective use of the internet, as well as a playful approach to technology and problem solving⁹.

Overall inclusion rate is approximately 60% - this means that 60% of students with special educational needs (SEN) are included in regular schools, while 40% of students with SEN are taught in special schools (year 2022)¹⁰.

Understanding of open educational resources (OER)

The Austrian teachers show somewhat scarce knowledge of the concept of open educational resources (OER). In the survey, 75% (N = 73) report that they have never heard of the term OER. Yet 57% (N= 58, Ntotal = 102) report that they know that freely usable materials can be allocated with or published under a license. Seemingly, there is some confusion among teachers about OER, and we see from the interviews that while most teachers point at the fact that OER are free of cost, freely available, or adaptable for different needs, others confuse OER with being paid for or coming from different countries, covering several topics and being versatile. We received a number of different reflections on the question “In your opinion, what do you think distinguishes OER from other

⁵ <https://www.statistik.at/fileadmin/announcement/2025/02/20250211Bevoelkerung1.1.2025EN.pdf>

⁶ Compulsory education is understood as the number of school years each student is expected to be enrolled in the school system according to the national law.

⁷ <https://www.statistik.at/statistiken/bevoelkerung-und-soziales/bildung/lehrpersonen>

⁸ <https://www.bmb.gv.at/Themen/schule/zrp/dibi/8punkte.html#portal-digitale-schule-0-1>

⁹ <https://www.bmb.gv.at/Themen/schule/zrp/dibi.html>

¹⁰ <https://www.monitoringausschuss.at/wp-content/uploads/2023/06/Sonderbericht-Bildung.V2023-07-18.pdf>



educational resources?”. While most answers were along the lines that OER are freely accessible or free of charge in contrast to the vast amount that require teachers to pay for access, others addressed that OER might be shared by public or overarching institutions, e.g., “another difference is that an institution somehow checks that the facts are reasonably accurate, which could be quite amusing in political/civic education, for example, because there are always serious errors in school textbooks. I don't know. They should actually be checked, but there are always mistakes in them”.

4.1 How teachers find resources

4.1.1 Platforms used

The Austrian teachers report a varied use of platforms when searching for digital resources. They use platforms like Youtube (mainly for learning videos) and Google (for searching), apps (e.g., Lurs, Kahoot, Anton), Studyfix, Eduki, and Pinterest. Interestingly, the teachers mention more than 45 different types of platforms and tools they use when searching for educational resources.

Surprisingly, Eduki is the only platform that is used by many teachers - 45% (N = 35) when searching for educational resources. Eduki is a website where teachers can upload and download materials.

The materials are checked by the Eduki team (copyright, fundamental democratic rights). The materials are intended for use in their own lessons only. The costs are determined by the teachers who upload the materials. Eduvidual¹¹, a platform hosted and promoted by the Ministry of Education, is only cited by one teacher in our data, although the platform provides a broad selection of learning materials and courses mostly under an open license.

Specialized tools like Google Street view for virtual tours, Canva for designs and worksheet crafter are also mentioned. Nationally licensed platforms like Lern Max and Antolin are preferred for their reliability and legal compliance. See Appendix C for a full overview of the platforms and tools used. Please note that most of the platforms reported used by the teachers in our data are not OER-platforms.

Teachers seem to value platforms that are well-structured, visually clear and offer diverse materials. Quick access to information is highlighted, emphasising that platforms should not require multiple steps for login and registration. Resources should be easily accessible, and the teachers do not want to spend too much time to only find out that there is nothing of relevance. Moreover, several teachers shared concerns related to registration requirements for even being able to have a look at the educational resources, and the risk of leaving personal data and potential misuse of it.

¹¹ <https://www.eduvidual.at/>

Barriers mentioned are for example financial barriers, as some platforms require individual payments, leading to reflections across whether schools should cover such costs or the teachers themselves. Most teachers in our interviews shared that they or their colleagues have paid for teaching material on online platforms. Further, several teachers mentioned the use of platforms that are merely developed as exchange platforms – you have to share something to be able to download something.

Also, most teachers interviewed highlighted that the platforms lack suitable search-options, and further information about the material, such as which topic, age group or educational level, and even which type of material it is. Some of the teachers explained that they therefore often tend to use familiar resources or tools like Google and Eduki due to time constraints and platform complexity. One teacher stated that having «one» platform for the diverse needs of all teachers is nearly impossible. The survey results further support these viewpoints, showing that most teachers believe the most important requirement for a platform is that it has to be easy to navigate to find the educational resources (84%, N=83), followed by *The platform has to include instructional information on the educational resources (68%)* and *provide information on the adaptability to a diverse group of students (67%)*. Around half of the teachers also give importance to other criteria such as be updated regularly (54%), provide information on accessibility of the educational resources (51%), provide information on the usability of the educational resources for the students (49%) and provide information on how the resource can be used, modified and shared (licenses, etc.) (49%). The least important requirement seems to be that the platform has to be from known publishers and/or official institutions (24%).

4.1.2 Motivation and reasoning for using digital resources

The Austrian teachers' motivation for using digital resources is mostly explained as a key element in creating varied and inclusive lessons. Addressing students with different learning challenges, they emphasize the need for materials in terms of, e.g., visual, auditory and kinaesthetic resources to meet a diverse student group. Digital resources such as videos and images help clarify concepts, offer diverse perspectives and enhance student engagement. In terms of meeting student needs, digital resources offer adaptations for non-native speakers, and varied competence levels and needs.

Teachers value quick access to resources and find that digital resources can be useful in specific areas where they find that other material (e.g., physical book) is lacking. They also mention digital resources to “spark” curiosity beyond the classroom (e.g., “checker tobi”, a TV-show presenting topics in a child-friendly way aimed at primary school children). The survey results support these aspects to a large degree showing that teachers strongly believe that *use of digital resources*



increases the students' motivation for the subject being taught (54%, N=74) and *make it easier to track learning processes in the subject being taught* (47%). Moreover, while around one third of the teachers agree that digital resources improve the students' understanding of ideas (31%) and achievement (27%) in the subject being taught, a larger group answers quite neutral (50-52%). This seemingly shows that the teachers are not entirely sure to what extent such resources improve achievement and understanding to the same degree as for their use for motivation and tracking learning processes.

4.1.3 Evaluation of quality and criteria for selecting educational resources

In terms of evaluating the quality of the resources the teachers find and use, the teachers assess resources based on a range of criteria, e.g., clarity, language, visual appearance and appeal, diversity and content-alignment with teaching goals. Although the teachers report different aspects when assessing the quality of the educational resources they find, our study shows that most evaluations rely on the teachers' personal judgements rather than formal criteria. For instance, 88% of the teachers report that they review the material thoroughly checking for, e.g., the appropriateness of the difficulty level for their students, the accuracy of the content. Also, the up-to-dateness (84%), aesthetic design (75%), and being shared by other educators (e.g., professors, researchers, teacher educators) (62%) and shared by other teachers (51%) are important criteria the teachers emphasize when evaluating the quality of a digital learning resource before using it. Least important are Comments/reviews/ratings of other users (37%) and Metadata (e.g., author information) (20%).

4.2 How teachers create and share digital resources

4.2.1 Creation of digital resources with AI and other tools

Some of the Austrian teachers have created digital resources, such as learning videos, stop-motion videos, quizzes (e.g., Kahoot), and custom worksheets using tools like Worksheet Crafter, Word, or Excel. One of the teachers explained in an interview “geography topic is always difficult, I think. Extremely difficult. I think the books... there is this book “Across Styria” thing and all sorts of stuff — you can make a [city] folder and who knows what else — and in my opinion, there’s outdated material in the collection somehow. I’m aware that geography and history aren’t exactly the most exciting subjects for kids, but I’m a bit old-school there too. I searched a lot on the internet and found nothing, and then I stumbled across a very funny city guide...”. This teacher continued explaining how they further developed material that was more appealing, age-relevant and could be adapted for different competence levels and interests. As part of adapting the sources the teachers mention several aspects such as gender, e.g., “Then there’s Lurs [digital learning platform for

elementary students that playfully promotes German], I'm a big Lurs fan. The reading and spelling dragon. We're a "monster class," and with so many boys, everything needs to be a bit mystical and exaggerated, you know?". Others emphasize the need for material in different formats, such as pictures for the pupils that struggle with reading, or simply that it is appealing and cute – to attract their interest and motivate them.

Our study shows that resource creation is oftentimes tied to prior training (e.g., during studies and internship). Creativity and personalization are central aspects of resource creation, but some teachers express hesitation or limited experience in this area, as well as challenges in terms of time constraints and other responsibilities.

Though AI is mentioned as a tool valued for generating ideas, simplifying language, and creating differentiated material (e.g., close texts or simplified factual texts), the teachers' use of AI in creating material varies. One of the interviewed teachers shared "There are definitely some topics where it's really difficult to find something child-appropriate. I have to admit, I cheat a little with ChatGPT. I know it's not the ultimate, miracle solution". Further the teacher shared "But ChatGPT often gives you a new perspective. And what ChatGPT also does — I'll say "she," okay? — she gives concrete suggestions on how to implement something. If you really — well, you have to ask smart questions — then she gives you real ideas on how you could implement something if you're stuck...".

In our data we see that some Austrian teachers use AI for specific tasks, like converting texts into differentiated accessible formats, or generating creative outputs like short comics, videos and images. Yet others do not use AI-tools for creating material, mostly due to lack of training and uncertainty related to its use for educational purposes (e.g., fear of cheating, no experience).

4.2.2 Sharing, License and Collaboration

Many teachers do not share their resources widely, citing concerns about personal ownership, lack of relevance for others, fear of judgment (e.g., for unconventional materials). Sharing typically occurs informally within schools or teams, often direct exchanges between colleagues or through the schools' learning platforms. Some teachers use platforms like Worksheet Crafter or G Community (a website where special education teachers can share and retrieve material) to share resources, though platform complexities and copyright compliance can discourage sharing. In our survey only 3 out of 78 respondents have shared their materials with others via platforms. Subsequently, the teachers that answered no, were asked in an open-ended question for an explanation for why they do not share their material. We received 35 answers, including: a) Platform-related issues such as no suitable platform or lack of knowledge about relevant platforms, or that they are too complicated (e.g., registration); b) Uncertainty related to licencing, copyrights, and legal aspects of publishing; c)



Personal aspects, such as lack of knowledge on how to share, time constraints and increased workload, self-doubt about whether the material is helpful or relevant for others, have not thought of it, unsure about the quality of the material, etc. Two teachers also explain “It’s cumbersome to avoid plagiarism accusations if you’ve included something that someone else has already created” and “Too little knowledge about where and the hurdle of evaluating others”.

Even though few teachers share educational resources widely through platforms, exchange with colleagues is more frequent. Around 90% (N=70) often share materials they believe are useful to other teachers or pupils. Interestingly, from the interview data it is evident that this exchange of materials is not the same as true collaboration between the teachers for developing or discussing materials. Most teachers seemingly work independently when planning, executing and evaluating teaching.

4.2.3 Adaptation of resources

A large number of teachers (91%, N= 72) report that they modify or adapt a learning resource before they use it in their teaching. The teachers adapt resources by simplifying language, instructions, and visuals to accommodate diverse learners, such as students with German as a second language or limited language comprehension. Modifications include creating simpler math problems, reformatting materials, and tailoring content to fit specific classroom needs, such as designing materials that parents with limited German skills can use at home as well as in the classroom.

Teachers often take inspiration from existing resources but recreate them to fix issues like errors, inappropriate symbolism, or irrelevant examples. Results from our survey show that the teachers most often adjust the level of difficulty for their students (e.g., explain difficult words, change the complexity of sentences) (79%, N=62), adapt content (e.g., change individual words or names) (74%, N=58) and adapt to the needs of the students (e.g., remove barriers, provide materials in different difficulty levels, add subtitles) (66%, N=51). Also, more than half of the respondents modify the material by adding concrete examples, exercises/tasks, and change font-types. 47% of the teachers adapt the material towards better representation of diversity (e.g., more gender-sensitive language, more diverse characteristics of pupils). One teacher explained “for example, there is the quiz, I really liked it, at first. And then I looked at it and thought, well... those are Bibifax questions [very easy questions]. Somehow, because I realized, it’s such an interesting animal. It sometimes eats itself and then it grows back and so on, and that’s just like, like a little underwater monster and the kids were really receptive to that. So the quiz would have ended up being way too easy, and dealt with so quickly. And then that was simply too little for me, that they would just read the quiz and then tick the correct answers. I cut out the quiz questions and then mixed them up on the table and said, that

everyone who had better quiz questions, now, that we'd write them down there and then we just made our own quiz, which we then glued together and then I just copied that for example. And then that was what was in the science exercise book. Our own quiz. Those are just little playful things I allow myself. But they basically had the guideline. That's the differentiated part...". This teacher continued explaining how they then could use this newly developed quiz for all pupils' learning, differentiating to the different competence levels, but also for motivating all.

4.3 Further training

The Austrian teachers express an interest in learning how to use, create and share OER. Preferred training formats include, e.g., online training (due to time constraints and flexibility) including modules and asynchronous trainings that can fit their schedule. Some teachers also mention in-person options, with the possibility for it to be organized "in-school". They value opportunities that enable interaction. Topics they show an interest in learning about are, e.g., creating resources using AI, tools for free resources, educational games and guidance for using platforms.



5. Estonia

Estonia is a Baltic country in eastern Europe, with a relatively small population of 1.3 million people. In 2024 there were around 163 000 pupils and 17 290 teachers¹² in Estonian general schools (1-12 grades). Compulsory education is until the age of 18, which equals 9 years of education.

The digital infrastructure in Estonian school is very advanced. The government has invested in internet connection and technology tools for about 8 million euros. Additionally, 30% of Estonian population is of Russian decent, and the majority of them are Russian speaking. In 2024 the Education and Research Ministry stated that 25% of the pupils require special support. In 2024, there were 35 schools for children with special needs, with approximately 3500 pupils¹³.

Understanding of open educational resources (OER)

Estonian teachers from our survey study (N=58) seem quite knowledgeable about digital learning environments. Indeed, 88% of the teachers have known that freely usable materials can be allocated with or published under a license. When it comes to open educational resources (OER), almost half (46.5%) of the respondents have heard of the term OER before. Among the teachers who have heard of the term (n=27), 66.5% even knew of the definition (UNESCO, 2019). However, we have seen in the data from the other partner countries that even though teachers declare understanding the concept of OER, they show confusion in the interview data when asked to give concrete examples. A similar contrast might be present in the Estonian interviews.

5.1 How teachers find resources

5.1.1 Platforms used

In our survey data, Estonian teachers (n=50) name many different platforms or sites they are using when searching for digital learning resources. Indeed, 58 unique sites are cited by the teachers. The most cited site is E-koolikott¹⁴ (n=21), Estonia's main digital platform for learning resources, which is maintained and funded by the government. Other platforms used widely by the teachers are Google (n=19), Youtube (n=15), Canva (n=9) and LearningApps (n=8).

When selecting a platform, Estonian teachers are looking for different requirements. All teachers agree that the main requirement is the ease of navigation of the platform (100%). The platform

¹² <https://www.stat.ee/en/avasta-statistikat/valdkonnad/haridus/general-education>

¹³ https://andmed.stat.ee/en/stat/sotsiaalelu_haridus_uldharidus/HT12/table/tableViewLayout2

¹⁴ e-schoolbag - <https://e-koolikott.ee/et>

should also be updated regularly (97.5%) and include instructional information on how to use the resources (93%) and information on usability (93%). Other important requirements for Estonian teachers are that the platform should provide information on accessibility (88.5%) and on how the resource can be used, modified or shared, in other words information on licenses (88%).

When asked to explain why they use a specific platform, the main reason given by the teachers in our survey is that the platform has a great number and variation of resources (n=12). One teacher calls for example Google “the largest database” for resources. Other teachers are looking for platforms within specific topics: “since I work in robotics, there are many educational videos on how to build and program [on this platform]”.

Estonian teachers are also explaining their choice by pointing at specific features, either linked to the resource type, didactical aspects (N=11) or technical features (N=9). Many are for example selecting specific platforms in order to find “educational games” or “simulations in science”. In fact, 8 out of the 11 teachers who are looking at specific features in a platform mentioned looking for games.

When it comes to the technical features, many teachers are looking for interactive materials or automatically controlled tasks (gamification).

5.1.2 Motivation and reasoning for using digital resources

Surprisingly, only 27% of the teachers who answered the survey (n=52) declare searching for digital resources often or sometimes. Most teachers (71%) report searching for resources online only 1 to 4 times per semester. When searching for resources online, Estonian teachers largely prefer videos (91%). They also are interested in images (71%), simulations or tools (66.5%), games (64.5%) and documents (62%).

When asked what type of resources they miss the most on the platforms they are currently using, the answers from the Estonian teachers show an interest in student active learning. Indeed, 6 teachers are missing more interactive resources, for example materials “which allow the student to be active all the time and experience movement – interactive”. And 7 are looking for games or simulations. In fact, the interest for playful materials is present throughout all the survey data. Some teachers are missing games for specific topics, for example “internet safety for school level” or “language learning games”, others are looking for “substantive and playful materials” or “simulations of real-life tools and processes”. Moreover, the teachers seem to have clear didactic ideas for what they need in their teaching. And indeed, the following comment sets the pedagogical matters in front: “Digital materials themselves do not change much; what is important is how and why they are used”.

Even though they might not often search online for digital resources, Estonian teachers largely agree (100%) that the use of digital resources makes it easier to track learning processes in the subject being taught. This interest in tracking progress and more generally on learning analytics is also clear in the teacher's open answers to the survey. One teacher when thinking about the future of education says for example "I expect that the learning materials will be increasingly adapted to different levels and students with special needs, so that as a teacher I can easily choose who to assign a part to. I also want materials that would also provide in-depth learning analytics."

5.1.3 Evaluation of quality and criteria for selection

When assessing the quality of a digital learning resource, Estonian teachers are focused on two main factors: up-to-dateness (100%) and a thorough review of the resource (100%). The open answers in the survey also reveal that teachers use their own expertise to assess a resource. One teacher explains how they evaluate a resource like this: "It always depends on my purpose for which I need the material. If it is an additional playful element, then I value more that it is visually enjoyable and technically functional. If it is a matter of finding alternative material suitable for a student with special needs in order to adapt the lesson activities to them, then I proceed from the student's needs. If I want to use the learning material to acquire a new topic and check knowledge, I evaluate its content and structure very thoroughly according to subject knowledge and pedagogical knowledge about the nature of learning."

Aesthetic design is also an important criterion of the teachers' evaluation of the quality of a resource (97.5%), as we can also see in the previous quote. Metadata (83%) about the resource and comments or ratings from other users (78.5%) are other criteria used in the assessment of quality. When asked for other aspects that they emphasize when assessing the quality of a digital learning resource, many teachers mention different technical features. For example, "how many users I can add", or the possibility of dividing the resource in small chunks, or "the length of the material". Many teachers also mention that they look for resources from trusted publishers. One teacher shares that "the material should also be shared by a specialist in their field", another that they "look at whether the material is referenced from reliable sources". Finally, they in general assess the quality of the content and if the resource fits both their context and their specific students. One teacher checks if the resource "meets the learning objectives and is pedagogically logically structured", another if it "matches the school's goals and [their] way of thinking as a teacher".

5.2 How teachers create and share digital resources

5.2.1 Sharing, License and Collaboration

A large number of the Estonian teachers from our survey data (71.5%) have published materials they have created online. They report sharing these resources on many different platforms. Indeed, 25 unique sites or platforms are cited in our material. The platform that is most used by the teachers is the national e-schoolbag (e-koolikott, n=13). YouTube (8) and Moodle (7) are also frequently mentioned in the data. Other platforms named by the teachers are Genially (4) or their own websites (4).

A majority of the teachers who share resources online (60.5%) have shared the materials under a license. Teachers mention using different types of Creative Commons licenses. Most teachers who have not used a license on published material explain that they didn't think about it or that they lacked knowledge. Other reasons for not allocating a license are issues with copyright (e.g., when part of the created resource is not used legally), technical challenges or that it is time-consuming. When it comes to reasons for not publishing materials online, the teachers in our data explain that they are doubting that the quality of the resource is good enough or not feeling qualified to do it. Other reasons are that it is time-consuming to publish resources online, and simply not having thought about it.

Although not all teachers are publishing resources online, a large majority report sharing materials directly with colleagues. Estonian teachers are often sharing materials they believe can be useful to other teachers and to pupils (90%), either materials they have created themselves (79.5%) or materials they have found online (72%). Not surprisingly, only 10% of the teachers report that they share materials with colleagues where they are not sure about the quality.

One teacher highlights in the following comment how this sharing among colleagues can be set up at an institutional level: “we have several so-called open courses in the Moodle environment, from which you can take materials (videos, texts, presentations). This is a good place to collect things and share information within the institution. The added materials have been tested, so you can be sure that they work.”

5.2.2 Adaptation of resources

In our data, most of the Estonian teachers report that they adapt or modify a resource before using it in their teaching (95%). As many as 59.5% of these also report adapting or modifying resources at least once a week.

Estonian teachers most often adapt the content of the resource they will use (85.5%). In other words, they change words, names or other details in the content itself. A teacher explained, as an example,



that they “translated materials to Estonian or adapted the terminology to meet the standards of the profession”. Many teachers (75.5%) also add exercises or tasks to the resource they find. One teacher states that they “have added interactive elements (e.g., surveys, H5P tasks)”. 68% of the teachers add concrete examples to the material they found. Finally, 66% of teachers adapt the resource to fit the needs of their students, by for example removing barriers, providing materials in different difficulty levels or adding subtitles.

Conversely only 7% of the Estonian teachers in our data report adapting their resources towards better representation of diversity (e.g., more gender-sensitive language, more diverse characteristics of people). This might be influenced by the fact that the Estonian language is already gender neutral.¹⁵

¹⁵ <https://eestikeelt.com/>



6. Italy

As of 2025, Italy's population is estimated to be 58,934,464, with a population density of approximately 195.5 inhabitants per square kilometer¹⁶. The country is experiencing a gradual population decline, with a total fertility rate of 1.18 children per woman, which is below the EU average. Italy has a significant foreign-born population, estimated at 5.4 million, which constitutes about 9% of the total population. The largest groups of immigrants include Romanians, Albanians, and Moroccans.

In Italy, the primary education system serves approximately 2.4 million students aged 6 to 11 years. The total number of teachers in primary schools is around 200,000, including both permanent and temporary staff. Teachers are required to have specialized training and engage in ongoing professional development to enhance their teaching skills. The education system emphasizes inclusivity, catering to diverse student populations, including children with disabilities, learning difficulties, and varying socio-economic backgrounds. Legislative frameworks, such as Law 53/2003 and Law 107/2015, focus on improving educational quality and accessibility. Education is compulsory for five years, fostering a strong foundation for lifelong learning and social integration. The system aims to create an equitable environment that encourages the development of all students.

Italy's school digitalization is in progress, driven by the National Plan for Digital Education¹⁷ (PNSD; this policy, launched in 2015, is a cornerstone of Italy's strategy to integrate digital technology across the school system), but faces challenges despite advancements made during the pandemic. While there have been improvements in infrastructure and teacher training, challenges remain in achieving universal high-speed connectivity and ensuring consistent digital skills across the population. The transition to a more digitalized system has revealed the need for sustained investment and a more integrated approach to technology in education.

In Italy's education system, there is a strong emphasis on inclusion for students with disabilities. As of the 2023-2024 school year, 359,000 students with disabilities were enrolled in primary schools, representing a significant commitment to inclusive education¹⁸. Italy does not utilize special schools; instead, it focuses on integrating students with disabilities into regular classrooms. This approach has led to an impressive 99.6% inclusion rate of students with disabilities in mainstream education. This

¹⁶ <https://www.istat.it/comunicato-stampa/censimento-e-dinamica-della-popolazione-anno-2024/>

¹⁷ https://www.istruzione.it/scuola_digitale/allegati/2016/pnsd_en.pdf

¹⁸ <https://www.istat.it/comunicato-stampa/inclusione-scolastica-degli-alunni-con-disabilita-anno-scolastico-2023-2024/>



means that only 0.4% of students with disabilities are in specialized rehabilitation centers, financed by health services.

The legal framework supporting this inclusive approach includes Law 104/1992¹⁹, which emphasizes the education of disabled children within regular schools and the provision of necessary support and resources.

Understanding of open educational resources (OER)

Italian teachers show little to no knowledge of the concept of open educational resources (OER). Even though in our interview data most teachers report finding the definition clear and understandable, they later on in the interview struggle to connect the definition to concrete examples in their practice. One teacher confuses OER with digital resources only, another with online resources. The concept of openness is also often reduced to cost: is the resource available for free or not. These results are confirmed by our survey data where only 16,5% of the respondents had heard of the term OER before taking the questionnaire. These findings are also in line with the research literature (e.g., Farrow et al. 2024; Baas et al. 2019).

6.1 How teachers find resources

6.1.1 Platforms used

According to our study, Italian teachers use a variety of platforms when searching for educational resources: ranging from their schools' collaboration platforms - only accessible to staff, to commercial platforms like Youtube or Pinterest. Educational platforms from the national broadcasting group Rai (RaiScuola, RaiPlay, RaiStoria) are also popular, as well as resources from the publisher Erickson, specialist of inclusive educational resources. More interestingly Italian teachers seem to prefer sites from trusted issuers, where they know the publisher's credentials: for example, official sites, university sites. They also seem to select the platform according to what type of resource they are looking for, depending on their pupils' age or the subject they teach.

Teachers say they also prefer platforms that are easy to use and that offer a rich number of materials. These desired requirements are confirmed by the survey results, where 99% of the respondents (N=75) are looking for platforms that are easy to navigate. In addition, 93% are interested in platforms where resources are offered with instructional information. Other important

¹⁹ <https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:legge:1992-02-05;104>



criteria for platforms are regular updates and information on the accessibility of the resources and on how they can be used, modified or shared.

In contrast to these expected requirements, Italian teachers report struggling with platforms where the navigation is unclear. They mention the lack of filter of some platforms as an example of how finding resources can be challenging. Consequently, many teachers think that finding good resources is a time-consuming endeavour. One teacher describes having to watch carefully through the whole video to ensure no images can be shocking to their young pupils, due to the lack of age filters on the platform they are using.

6.1.2 Motivation and reasoning for using digital resources

In our study Italian teachers mention using a large variety of educational resources in their teaching. All the interviewed teachers bring up searching for videos. This result is confirmed by our survey analysis, where 61% of respondents reported preferring video when retrieving educational resources. One teacher explained their teaching process as follows “I look for, perhaps, a video that [...] introduces what the topic is, so you see it”, before continuing by presenting the topic through different formats, like writing. The use of varied formats to introduce the same topic, here video and writing, is recommended in the framework of universal design for learning (UDL; see Meyer & Rose, 2024) as a way to include all students in the lesson. This teacher’s experience is a good example of such practice.

Other preferred formats revealed through our analysis of survey data are documents (57.5% of the respondents) and images (72.5%). This interest in finding images correlates with the stories told by the interviewed teachers. Many teachers report illustrating texts with images to include students with reading difficulties, as we will see in the section about adapting resources.

An overwhelming amount, 95.5% of the respondents agreed that using digital resources increases students’ motivation for the subject and improved students’ understanding of ideas in the subject. In the same way, interviewed teachers are using digital resources to engage students through more variation and more captivating material. They search for resources to offer up-to-date lessons. A teacher explains for example that “you need to have material to be able to enhance or encourage the learning, which must really be updated.”

Another teacher uses digital resources to help specific students with a lesson topic. After noticing that “some children struggled to name emotions and distinguish between them”, this teacher looked for a video that they used in a lesson with all pupils. In that way all pupils benefitted from the extra educational resource meant to support the children who needed it most.

As a behind-the-scenes to these success stories, many teachers seem to be struggling with finding adapted resources. They report finding the process time-consuming, as they not only have to first find a resource, but also to evaluate if it fits for their pupils, subject and learning goal. Interestingly, one teacher also reports challenges in using the digital resources due to a lack of equipment in the classroom.

6.1.3 Evaluation of quality and criteria for selecting educational resources

Once they have found a resource online, teachers must evaluate its quality. There is a clear consensus in the survey and the interview data when it comes to which criteria teachers use to evaluate the quality of digital resources. 97% of the survey respondents report reviewing the resource thoroughly. The interviewed teachers also emphasise using their professional experience to check if a resource is good enough for their purpose. It should be adaptable to their pupils and to their teaching context: “I see if I can use it, then I think about the student if he can use it, if [it can benefit him] or the group”.

Adaptability to their own students is also a criterion to reject some resources. The following excerpt shows the challenge of finding resources that are easy enough for students with cognitive disabilities, but not too childish in their design: “what you find on the internet is usually material designed for children, but I cannot propose it to teenagers because of the discrepancy of the image.”

Another important selection criterion is that the resource is shared by other educators (98%) or teachers (96%), or that it has been tested by colleagues. Teachers see it as a proof of validity of the resource if it is recommended or approved by colleagues or the teacher community.

6.2 How teachers create and share digital resources

6.2.1 Creation of digital resources with AI and other tools

Creating a digital resource from scratch is at another level of expertise. And indeed, only some interviewed teachers report having created their own digital material. When developing their material, Italian teachers always have their own students in mind. They create resources that are adapted to their needs, and to complete what they already have available (e.g., textbooks).

Interviewed teachers reported many creative ways of using different digital tools. One teacher created for example a game using the online platform Wordwall: “During a project on Ancient Greece, we created interactive games on the interactive whiteboard in which children had to guide Theseus through the labyrinth to find the Minotaur. In this case, we used Wordwall.”

Some teachers are also developing resources with their students, like creating a digital book with “photos of the children’s hands performing various activities, along with audio recordings of their voices explaining the activity shown.”

Some resources are meant for one specific child, even though they might be used by the whole class. A teacher “created a worksheet that allowed a child to practice certain motor movements (using a pencil) in order to develop better fine motor skills, which are essential to writing.” Even when creating resources for the whole class, teachers report adapting the format to fit all students’ needs, like changing fonts, text size or adding images on the side of text. These small changes are essential for some students, but also beneficial for all.

Most interviewed teachers have tried AI in their work as a teacher. Some use it regularly to get ideas, create conceptual maps, get examples or create images. However, only one teacher report exclusively positive experience with using AI in creating resources. Most teachers explain not fully trusting the results they get and having to check carefully the content. One says about AI that it “gives information that is not really correct. So, in the end, I might as well do it myself”. Italian teachers use it “as a starting point” in their work or “for personal research”.

One teacher also reported using it with their students but always trying to “teach them the fact that you still have to doubt the contents”. The use of AI in creating resources seems to remain limited.

6.2.2 Sharing, License and Collaboration

When sharing of digital resources happens, it seems to be limited to a close circle of colleagues or co-students. Only 12% of the survey respondents report having published a resource they created, and 3/4 of them publish resources once a year only. The main reasons for not publishing resources are that they do not feel qualified and/or have simply not thought about it. One noticeable finding is that none of the respondents who had published a resource, had shared it under a license.

Likewise, none of the interviewed teachers have shared a resource publicly. They mention time as a main reason for not sharing, but also, in line with the survey results, not having thought about it. There seems also to be a lack of knowledge surrounding the sharing process: what licenses one should use, and where should the resources be shared.

The survey results show an interest in collaboration. 79% of respondents report that they sometimes or often share materials with their colleagues that they believe are useful to other teachers and pupils. About 63% also share materials they find online and materials they created. However, in the interview data this collaboration remained limited. Most teachers seemed to be working somewhat independently and only turning to colleague for approval of a resource in case of co-teaching or in a one-way sharing process. When active collaboration happens, it is only with trusted or like-minded



colleagues: “I rarely collaborate with colleagues, except for one or two. Unfortunately, most of my colleagues at school have little or no digital skills and do not seek training in the area. When I do collaborate with the two colleagues with whom I exchange ideas, we share suggestions and apps we have already tested and found useful.”

6.2.3 Adaptation of resources

A vast majority of the respondents of our survey report having modified or adapted a resource before using it in teaching (91%). As many as 54% report doing it either always or often. Similar results are found in our interview data, where all teachers mentioned adapting the resources they find for their lessons. It could be small changes to the content (73.5% of survey respondents), like swapping individual words or names, or to the level of difficulty (68%), like explaining difficult words or changing the complexity of sentences. Adapting a resource can be a selection process like in the following example “I adapted a video found online about climate change. The video was aimed at older children than my pupils, so I selected and edited the most important and easily understandable parts for them”.

In this way, teachers adapt the resources to the needs of their students (62%) by removing barriers, providing materials in different difficulty levels or adding subtitles. A teacher is for example “underlining, highlighting the keywords, [...] also putting images” in the material they use in class for their non-italophone students.

6.3 Further training

All interviewed teachers are interested in further training on the topic of open educational resources (OER), or in general the use of digital resources in teaching. A common trait of all answers is that the provided training should have credits (ECTS, also called in Italy CFU – Credito Formativo Universitario) in order to be recognized. Several teachers also mentioned preferring flexible formats, like asynchronous or online training.



7. Norway

Norway is a Scandinavian country of northern Europe counting around 5,5 million inhabitants. In 2023/2024, there were just over 637 000 pupils in primary and lower secondary schools. The compulsory education in Norway is 10 years, age 6-16. All students between 16 and 19 have the legal right to free education.

The digital infrastructure at school in Norway is highly developed. Most pupils have access to a digital device as a one-to-one basis. In 2021, “98 per cent of lower secondary school pupils have been given their own digital device” (The Norwegian Directorate for Education and Training, 2023).

In Norway all children, also those with severe learning disorders, typically go to their local school. Most children follow regular classroom teaching, but if needed they have special needs education both in and outside the classroom either in small units or individually. Only children with severe multi-handicaps are in separate units, typically units with 4-5 children with premises at a local school. However, the Norwegian system is still facing challenges, as organisational inclusion is not the same as social inclusion. In Norway, teachers show high level of satisfaction when it comes to the values that the Norwegian inclusive system is based on, but they also perceive the system as challenging in day-to-day work (Uthus, 2020). Further, also parents show high levels of satisfaction with an inclusive system where children can attend the local school (Caspersen et al., 2020). Many parents, however, experience that social inclusion gets more challenging when the children get older.

Understanding of open educational resources (OER)

The Norwegian teachers participating in our interview study does not seem to have a good understanding of the concept of OER. Almost all teachers report having no prior knowledge of the term. Although they seem to have no issue understanding the definition (UNESCO, 2019), teachers struggle to find concrete examples of OER. This confusion can be seen in the following quote “I can’t quite figure out what it really is” or when teachers label programs or resources under a paid license as OER.

In contrast to the interview participants who had no prior knowledge of OER, 59% (n=27) of the respondents to our survey declare having heard of the term OER. However, only two of the teachers (12.5%) who had heard of OER reported having known about the definition. We can only wonder if this difference between the interview data and the survey data might be due to slightly different populations for the two datasets, with a survey group that is already more familiar with this field than the interview respondents. Even though the survey participants report more familiarity with the

term OER, they might also, in line with the interview participants, struggle with concretising the definition into everyday examples.

7.1 How teachers find resources

7.1.1 Platforms used

In the survey data, teachers (n=17) mention 34 different sites and platforms they are using when searching for educational resources. The sites most often mentioned are Google (7), NDLA (6) and Facebook (4). NDLA²⁰, the Norwegian Digital Learning Arena, is a national OER-repository for upper secondary level covering all subjects taught in high school in Norway (although with a varying number of resources for each). In the same way, in the interview data teachers name a wide array of platforms and sites. However, the majority mention using the school's platform where resources from different publishers are gathered: "we have access to a lot of things [...] It's through that portal on the school's website. We find everything there." These resources are paid for by each school and can vary from one institution to the other. NDLA is also mentioned in the interviews, alongside other national platforms, e.g. The Foreign Language Centre.²¹

There seem to be a difference between the interviewed teachers' strategies depending on which subject they are teaching. Language teachers report having to explore widely on the internet and finding resources in Facebook groups for teachers. This is also clear in the teachers' description of how they evaluate the quality of a platform. One language teacher for example report being mostly interested in the resource itself, not the platform: "I consider whether the quality [of the resource] is good. But I'm not so concerned about where I find it." Indeed, easy access is one of the main quality criteria named by teachers in the interviews. In the survey data 88% of the respondents (n=17) are also placing ease of navigation as a main requirement for platforms.

Another important criterion named in the interviews is that the platform should be hosted by a trusted issuer, for example official websites, or educators that are known for being experts on the subject. Adaptability to a diverse group of students (100%), regular updates (94%) and the availability of instructional information (88%) are also crucial requirements for the Norwegian teachers who answered the survey (n=17).

There are some clear challenges for Norwegian teachers when searching for digital educational resources. Many of the interviewed teachers mention paywalls, advertisements, and other issues while accessing either the platforms or the resources themselves. Evaluating the quality of the

²⁰ <https://ndla.no/nb/>

²¹ Fremmedspråksenteret: <https://www.hiof.no/fss/>



resources and finding the right resource for their lesson plans is also named as a main challenge. The sheer amount of potential resources without clear path to access and select them is difficult to navigate, or as one of the teachers puts it “it’s a jungle out there”. Some teachers are also struggling with finding resources in Norwegian. One interview participant, who teaches French in a middle school explains their dilemma with using educational resources in English instead of Norwegian “It’s a challenge that I send them out to learn French through another foreign language. That’s not how I do it in the classroom.”

7.1.2 Motivation and reasoning for using digital resources

Norwegian teachers in our study are using digital resources in their teaching daily. As one interviewed teacher says “all students have their own PC, and the digital environments are with us all the time”. And indeed, 48% of the respondents to our survey (n=23) are searching for digital resources online once a week or more. 82% search for digital resources at least once to thrice a month. When retrieving educational resources online, teachers from our survey reported preferring videos (84%, n=19). In line with this result, all interviewed teachers mentioned searching for videos to use in their teaching. Other preferred formats are images (47%), simulations and programs (47%), games (42%) and documents (42%).

A vast majority of the teachers participating in the survey agreed that the use of digital resources increases the students’ motivation for the subject (94%, n=16). This is also clear in the interview data, where teachers reported using digital resources to create variation in their lesson plans and to appeal to the pupils’ interests: “they think it’s really nice to get repetition through video”. Digital resources offer a more up-to-date and complete option than the textbooks and, when it comes to foreign languages, a more varied approach to the language: “They don’t get any French input. So, I’m concerned that they should go and seek out French in places other than just in the textbook.”

Differentiation is a main reason for using digital resources among the interviewed teachers. They mention being able to adapt the assignment to different pupils. Teachers can adjust the level of difficulty, or the format offered, so that pupils “have the opportunity to master and achieve things at their level and get the support they need.” In a similar fashion, 94% of the survey respondents (n=16) agree that the use of digital resources makes it easier to track learning processes.

Being able to play sounds, especially to read out texts, is another reason for using digital resources named by the interviewed teachers. This is mentioned as both something to help pupils with reading difficulties, and in general as something that can be an advantage for the whole class.

Other factors are the possibility for interactivity and the environmental aspect of using less paper.

7.1.3 Evaluation of quality and criteria for selection

When assessing the quality of the digital educational resources they will use in teaching, Norwegian teachers from our interview data describe trusting their own professional knowledge. They review the resources thoroughly and test them on their own to get ownership of the materials and to ensure the content fits in their lesson plan. All participants from our survey also report reviewing digital learning resources thoroughly to assess their quality (100%, n=16). The survey data also show that teachers trust the quality of resources shared by other educators (100%) or teachers (87.5%). This result is in line with the interview data, where teachers explain the importance of the opinion of their colleagues and peers when selecting a resource. One teacher says for example: “I trust colleagues who say things are good. In a way, also on Facebook [groups for teachers]”. Some also mention forgoing the quality assessment process completely when the resources are from trusted issuers, like textbook publishers or national centres. The resources “are developed by teachers or researchers who have written the textbooks. [...] So, there, I don’t feel like I have to make any assessment myself. Because it is approved, and it is licensed, and it is made by professionals”. However, another teacher raises the question of the quality insurance behind the resources purchased by their school or municipality, and wonders if the resources or resource packages are indeed checked before being added to the school platform.

In the survey, teachers (n=16) also rank very high the importance of up-to-dateness (94%) and of the aesthetic design of the resource (94%) when assessing its quality. For the interviewed teachers, the aesthetics of the resource is also a crucial element of their quality assessment. As one teacher explains: “I’m also concerned with how things look visually, that things are appealing. Sometimes you find things that aren’t appealing. I can discard things for that, even if there might be a good plan behind it”.

When selecting digital resources, Norwegian teachers from our interview data are facing some challenges, especially regarding the resources found online. They report that it is difficult to find resources that fit their lesson plans and their context. Another issue can be the format of the resource that might not permit changes and adaptation, as for examples pdf.

7.2 How teachers create and share digital resources

7.2.1 Creation of digital resources with AI and other tools

In our interview data, teachers were asked to talk about different situations when they created their own digital learning resources. In all the narratives collected, teachers are placing their pupils at the centre. They sometimes create resources with specific students in mind. One teacher reports having

pupils with high academic levels in their class and how they are creating resources to get some variation both in formats and in levels of difficulty to support their need for more challenging assignments. Differentiation is at the heart of many of the teachers' stories, but they also report always thinking about the whole class, not only those who might need more support "because clarity is good for everyone".

Teachers mention another reason for creating their own resources, and it is to complete the material they have available. Sometimes the textbook does not cover all the topics that a teacher would want to take up in their classroom. Another teacher also likes to let their pupils select the themes they will learn about, which might be challenging: "the topics varies a lot. But it's very interesting that they had lions for a while. Then it was just about finding things that had to do with lions. [...] And worse when we switched to otters. There aren't many people who create tasks with otters. So, we do a lot ourselves".

Teachers have varying experiences with the use of artificial intelligence in creating resources. Most have tested it out and some use it a bit. The interviewed teachers have used AI to create small texts and examples, as well as short assignments. However, they emphasise the need to check the result thoroughly before handing it out to the pupils. "When it comes to creating grammar assignments for Nynorsk²², I burned myself on it. [...] I did it because I was short on time. So, I didn't quality check, but when I gave the assignment, I saw that there were lots of mistakes there. [...] Some sentences were very strange, illogical. I didn't exactly experience it as a time saver." Other teachers have similar experiences and also wonder how much time is saved by using AI in creating assignments.

One teacher had a more positive experience when using AI chatbots as a conversation partner in the foreign language. Pupils were using it to prepare for their exam. The same teacher also mentioned teaching their pupils how to use AI, and especially how to ask good questions, or prompts, and what to expect of the results.

7.2.2 Sharing, License and Collaboration

Collaboration with colleagues seem to be limited for the interviewed teachers. Several teachers reported not having colleagues teaching the same subject at their school, thus limiting how much they can collaborate on creating and selecting resources. Interestingly, one teacher talks about collaboration on Facebook groups and how the group members have become a sort of colleagues "It's not my close colleagues, but my French colleagues on Facebook". Another teacher describes an interesting type of collaboration with their school colleagues. They do not collaborate on creating

²² Nynorsk is one of the two official written forms of Norwegian.



resources, but meet regularly to create an overview of the resources available on the school platform: “once a month we sit down and find out what we have”.

If some of the teachers have published resources while participating in the creation of a textbook, most declare not sharing publicly the resources they create. This is quite in line with the survey results, where only 2 out of the 17 respondents (12%) have published the material they have created. However, even those two respondents report not sharing regularly: only once a year or once a semester. They also have not used a license for the published material. One teacher explains “I haven’t needed one, as I thought it was open enough for everyone”. This comment shows a lack of understanding of the role of licenses that we also find throughout all the six interviews. One interviewed teacher confuses for example licenses with getting paid when your resource is used, another declares having no knowledge of licenses. In our survey data, the main reasons for not publishing the material teachers have created are time and not having thought about it. Other reasons for not sharing are not feeling qualified to do it and doubting the quality of the resource. Interestingly, one interviewed teacher used to share their material online, but have stopped doing so: “I have shared a lot with other teachers, but I don’t want to anymore. I don’t like things being out there online and floating around and living their own lives”.

However, teachers in our survey (n=15) often share with their own colleagues materials they believe can be useful to other teachers or pupils (93%), materials they found online (93%) and materials they have created (86.5%). Interviewed teachers also report sharing tips and materials with colleagues.

7.2.3 Adaptation of resources

All the interviewed teachers adapt to some extent the resources they find before using them with their pupils. One teacher explains: “I don’t think I ever use a resource without adapting it. Either level or content. And the times I haven’t adapted it at all, I’ve felt that. It hasn’t been as good”.

Similar results are found in our survey study, where 82% of the respondents (n=17) report modifying or adapting the learning resources they use in teaching, and almost half of all responds doing it always or often (47%).

We can see a clear match between what respondents to the survey (n=17) declare adapting in the learning resources and what the interview participants described. Teachers adapt the level of difficulty of the digital learning resource (70.5%). Sometimes they keep the structure of the task but give different levels to different student groups as one teacher describes in their interview. The same teacher also talks about selecting part of the resource to create differentiated learning paths for their pupils. Teachers also adapt the content of the resource (70.5%) to fit better their context or their students. Adapting the resource to their students’ need is also a main theme in the interviews. Also

in the survey, 70.5% of the respondents declared adapting the resource to the needs of their pupils by removing barriers, adding subtitles, levels and more. One interviewed teacher is for example scanning all the texts used in their class in order to have the computers read them out loud if the pupils want to listen instead of reading. Finally, 64.5% of the teachers (n=17) from the survey describe adding concrete examples to the resources they use in their teaching.

7.3 Further training

The Norwegian teachers from our interview data are interested in further training. Several would prefer courses with ECTS, other shorter and more informal formats like webinars. Teachers express also the wish that the course should be close to their own subject, with a clear link to practice (e.g., concrete examples and tools). In addition, one teacher would be interested in receiving an overview of resources or platforms for OER. This specific interest resonates with several other teachers' struggle to find an overview of available resources.



8. Spain

Spain is a Mediterranean country in southwestern Europe, with a population of more than 49 million²³. In 2024, there were about 2 707 302 pupils in primary school and 2 089 403 pupils in secondary. There were 768 798 teachers. In Spain compulsory education is until the age of 16 years old.

The digitalisation of schools in Spain has progressed significantly, however it also faces continuing challenges. The national Plan de Digitalización y Competencias Digitales del Sistema Educativo (DigEdu)²⁴ has earmarked nearly €1 billion to equip schools with over 300,000 portable devices, install interactive digital systems in more than 240,000 classrooms, and train teachers in their use. All schools are required to develop a “School Digital Plan”. A study of Spanish schools using the SELFIE tool (surveying 492 schools) found that while infrastructure and access have improved, the effective use of digital technologies for teaching-learning and the embedding of digital pedagogy are uneven (Castaño Muñoz et al., 2021).

According to the European Agency for Special Needs and Inclusive Education (EASNIE) data, for the school year 2025 available: in primary education, 80.7 % of students with special educational needs (SEN) are educated in mainstream classes in Spain (well above the European average of 66.7 %), whereas 19.3 % study in special needs schools²⁵.

Research shows generally positive attitudes among Spanish teachers toward inclusive education²⁶. According to data from Eurydice España-REDIE (via the Ministerio de Educación, Formación Profesional y Deportes), in the 2023-24 school year the number of pupils with foreign nationality enrolled in non-university education was 1,018,232. Thus, there is a large diversity in the Spanish schools.

Understanding of open educational resources (OER)

In our interview data the Spanish teachers show limited knowledge of OER. When provided with the formal definition by UNESCO (2019), they find the definition clear. However, when explaining what distinguishes OER from other educational resources it is evident that their understanding of OER varies to a great extent. For instance, one teacher explained “I think it helps students learn since

²³ <https://www.ine.es/>

²⁴ <https://espanadigital.gob.es/lineas-de-actuacion/plan-digedu>

²⁵ <https://www.ine.es/jaxi/Tabla.htm?tpx=26107&L=0>

²⁶ https://laaventuradeaprender.intef.es/proyectos_colab/como-hacer-investigacion-accion-participativa/

today's students are very familiar with technology, and I believe OERs are a good way to reach them". Another one states, "It could be that they are available for everybody; that they are very often the result of a collaborative work of many different teachers", emphasising that OER are often result of a joint effort. This goes along with the understanding of OER being created through working groups or regional initiatives that some teachers shared in the interviews. Also, some teachers emphasised OER being free, accessible, motivating and interactive, e.g., "The OERs can be used on the computer and are free, as well as being more eye-catching and interactive, which motivates students to continue using them and learning." Interestingly only one teacher brought up licenses as part of their understanding of OER: "free, and open licenses allow for adaptation".

The teachers' explanations of OER clearly show that their knowledge of OER is scarce and largely focusing on minor aspects of OER. However, similarly to the interviews, also the survey results show that more than 85% of the teachers report they have heard of the term "OER" before, the definition of OER (81%), and know that freely usable materials can be allocated with or published under a license (68%).

8.1 How teachers find resources

8.1.1 Platforms used

Spanish teachers frequently search for, and use, digital resources. They mention more than 40 different sites and platforms which they use to identify resources for teaching and learning purposes. Most teachers mention use of search engines such as Google and YouTube to locate worksheets, videos, images and games to adapt to their classrooms. Alongside these platforms, teachers use a range of established educational platforms. Popular sites include LiveWorksheets, Orientación Andújar, ARASAAC (particularly for communication pictograms), AsTeRICS, The Sound of Grass Growing, My chatty bag, Kahoot, Genially, Canva, Geogebra, Google Classroom and Moodle. Some teachers also mention websites from publishers and regional government platforms (e.g., provided by the Andalusian education authorities). However, Spanish teachers note that official repositories and institutional platforms are often difficult to navigate due to counterintuitive designs and structure, which discourage regular use. In this regard, many teachers prefer to use teacher-driven sources like blogs, Instagram accounts and peer recommendations and exchange due to easier access, authenticity and relevance.

The Spanish teachers prioritize platforms that are easy to use and navigate, free access (not behind a paywall), intuitive design, and possible to filter by for example level and subject. Visual appeal and student engagement play a role as well as they want to find resources that enhance student

motivation, that are interactive and relatable. The teachers emphasise that platforms should be adaptable and accessible, and that the platforms should ideally clarify how the materials may be used or modified. These findings are largely supported by the survey results showing that the teachers value the most ease of navigation when searching for educational resources (92%, N=24), followed by that the platforms provide information on how the resource can be used, modified and shared (73%, N=26), provide information on accessibility of the educational resources (71%, N= 24), provide information on the adaptability to a diverse group of students (70%), be updated regularly (69%) and provide information on the usability of the educational resources for the students (64%). The least important requirement for Spanish teachers seems to be that the platform has to be from known publishers and/or official institutions (46%).

8.1.2 Motivation and reasoning for using digital resources

The key factors in the teacher's motivation for using digital resources are to make learning more engaging, accessible and adaptable. Digital resources attract their students' attention and enhance the students' motivation for learning the selected topic. The teachers describe digital resources as visual, dynamic and motivating. Many note that screens and interactivity facilitate student engagement - both in terms of classroom interaction and independent study, allowing the students to interact with the material in multiple ways and at their own pace. One teacher shared: "I started a YouTube mathematics channel during COVID because the children were at home, they couldn't come to school, and they didn't have the teacher there. That is why I created it, and later it became a resource for them that they can watch repeatedly. It is a recorded lesson with explanations, all the exercises are corrected, everything is explained, and it has visual appeal".

The teachers emphasise that digital resources also enhance accessibility and the possibility for differentiation - especially for students with special educational needs, and mixed-level or multilingual classrooms. In other words, the teachers mention using digital resources, and tools, to promote inclusion. An example mentioned is using pictogram software or alternative communication systems. Another motivation mentioned is *practicality* as digital resources save time, support remote learning and are easy to share with colleagues and parents - as well as being aligned with students' digital habits. As one teacher state: "The dynamics are faster using these resources, and the teacher's work is easier and faster with these resources. Everything digital, with screens, attracts [the students'] attention more and can motivate them".

8.1.3 Evaluation of quality and criteria for selection

The most valued quality criteria are relevance to students' needs and curriculum, visual and interactive quality, up-to-date content, adaptability and editability and peer-review/validation from colleagues or online teacher communities. One of the interviewed teachers explained "The most important thing is that it allows me to adapt it to the characteristics of my students. The aesthetics of the design are also important, as it must be attractive to children, otherwise it is useless. And it must also be adapted to the level of difficulty of my students". Some teachers acknowledge that there is a risk that "eye-catching" design may outweigh content quality.

Several teachers express an interest in using structured tools for evaluating material but currently depend on their own experience and intuition. This is also supported by the survey results. Our study shows that most teachers rely on personal judgement, for example 88% of the teachers report that they review the material thoroughly (e.g., checking for the appropriateness of the difficulty level for their students, the accuracy of the content, etc). Moreover, most teachers find the up-to-dateness of the material critical (92%), followed by being shared by other teachers (73%), shared by other educators (e.g., professors, researchers, teacher educators), and the aesthetic design (65%). The least important criterion is metadata (e.g. author information etc) (46%).

In evaluating platforms and resources, some teachers mention the need for a checklist as this will mainly be based on their own subjective judgement and not formal frameworks.

8.2 How teachers create and share digital resources

8.2.1 Creation of digital resources with AI and other tools

In our data, some teachers create their own digital resources. Yet, most teachers use, remix and adapt existing educational resources rather than creating something from scratch. The latter is oftentimes done when the teachers cannot find a suitable resource. Spanish teachers revise and adapt a wide range of digital resources using diverse tools. Some teachers use platforms and tools to develop their own materials, e.g., Kahoot's, Live Worksheets, Canva-based literacy sheets, Genially presentations, and even full YouTube math channels with videos. Teachers in inclusive settings create customized boards and communication systems using tools like AsTeRICS and ARASAAC. One teacher shared "With students with ASD [learning challenges], I adapt materials according to their interests or specific situations. For example, I have a student who barely speaks but loves football; when I use materials related to that theme, he becomes more motivated and communicative. So, I adapt language materials with football-related content to foster communication".



Only a small number of our respondents have started using AI tools (Chat GPT) to locate or develop educational resources - especially when suitable materials cannot be found. They view this as a significant innovation for efficiency and customization. Teachers mention use of AI to generate images, produce texts or verses, design podcast scripts and adapt worksheets. For some teachers, AI is perceived as “really revolutionary. In fact, I am getting creative with it”, enabling teachers to customize materials quickly and explore new creative approaches.

One teacher when asked whether they faced challenges when searching for digital resources, replied “I usually find what I am looking for, but now we are starting to use ChatGPT a lot. I don't find many challenges or difficulties, and now even less because I use ChatGPT to find resources. For example, sometimes I can't find a resource for a specific level of my students, so I ask ChatGPT and it provides it for me. It either does it for me or adapts it quickly, or I adapt what it provides”.

For others, AI use is limited. Most participants express curiosity but lack competence in how to use AI and mention a need - and motivation - for more training.

8.2.2 Sharing, License and Collaboration

Our data show that while many teachers do share their materials, the nature of this sharing is often informal, direct, and limited to their immediate professional circles rather than being uploaded to public global repositories. They mention sharing their materials with colleagues through local learning management systems, Google Drive, Google School, email or other communication applications. Others, use social media, such as Facebook. Also, Instagram has been mentioned for inspiration, educational resources and professional exchange – especially by teachers working with inclusion and special needs education. One teacher explained “There are many old literacy workbooks, but on Instagram there are accounts of teachers who make their own workbooks and share them. For use in 1st and 2nd grade. These are fabulous”.

Some teachers mention that they have shared their material to open repositories (e.g. YouTube), but a lot of the teachers have not - or rarely - shared their resources due to time constraints, lack of confidence and limited awareness of licensing. One of the teachers interviewed emphasised that she revised and developed several resources and shared with her closest colleagues, yet not with others “I have to admit, as I said, that I feel a bit shy about sharing them. I shared with the teachers in my school, but I did not upload them. Sometimes I have been tempted to share it on Instagram, but I did not do it”. Furthermore, only one teacher in our material mentioned use of license under creative commons (CC): “I've published some materials under a free and adaptable Creative Commons license (CC). For example, I adapted literacy worksheets from a site called “Tiludis,” organized by themes such as Halloween or Christmas. I've used them with both students with and without special

educational needs. I would love for these materials to reach more people, but I'm not sure how to make them more publicly available".

Even though the teachers frequently exchange materials, they seldomly collaborate when developing educational resources – the latter is done individually. However, they often remix and build on ideas and materials from their immediate colleagues or others from their professional community. One of the teachers in our interview shared “for example, when you take a colleague’s notes, you can say: this part yes or this part no”. Only one teacher shared an example of being part of a larger regional network that shared successful activities and developed resources in collaboration “We have been part of the educational coordination team. We sometimes find that certain topics are not explored in depth and that there is a lack of specific curriculum content to take into the classroom. Above all, we want people to lose their fear of this type of initiative”.

8.2.3 Adaptation of resources

The majority of the Spanish teachers in our data (75%) report that they modify or adapt a learning resource before they use it in their teaching. The teachers report that they regularly adapt digital resources to meet their students’ needs based on aspects such as competence level, syllabus alignment, language and accessibility. Some adaptations mentioned include simplifying tasks, adding visual support, enlarging fonts, substituting images for text or customize themes to increase engagement. One teacher shared “Yes, we have made adjustments to suit the age of the student if it was not originally intended for that age group. Sometimes it is also necessary to make curricular adjustments by changing the syllabus”. These findings are supported by the survey data, showing that most teachers adjust the level of difficulty for their students (e.g., explain difficult words, change the complexity of sentences, etc.) (81%), adapt to the needs of the students (e.g., remove barriers, provide materials in different difficulty levels, add subtitles, etc) (77%), and adapt content (e.g., change individual words or names) (73%). Also, more than half of the respondents modify the material by changing font or font size (69%), add concrete examples (65%) and add exercises/tasks (65%). Teachers working with students with disabilities emphasise adaptation as crucial to meet their students’ needs and create inclusive education. One teacher stated “For example, for students with visual impairments, I usually adjust the font size. I have also adapted specific examples of exercises or tasks so that everyone feels represented”.

8.3 Further training

All the teachers expressed a strong interest in further training related to OER and digital resources. Teachers mention the need for more training focusing on what OER are, as well as how to use, adapt and publish OER, how to navigate repositories efficiently and evaluate the quality more efficiently, how to apply licenses and how to use tools like AI for content creation. Preferred training formats include short online courses, webinars and hands-on workshops that are practical and relevant to their teaching. They also emphasize the importance of flexibility. Some teachers highlighted the value of collaboration and mentioned workplace-based training to collaborate with colleagues, share experiences and build confidence. Interestingly, some teachers shared that they already have completed basic digital competency courses and are interested in advancing their skills further. One teacher shared “Yes, in our city we completed a basic course on digital competencies, which briefly covered licenses. I found it interesting and useful, especially because we took it collectively with other colleagues”. Another teacher clearly addressed their interest in professional development “I would like training on artificial intelligence, on how to search for and access resource repositories more effectively, and in general on new digital tools. It could be either online or face-to-face”.



9. Discussion and Concluding remarks

In this section we will highlight the key findings from the country reports and discuss them with regard to the implications for different stakeholders, such as research, policy and practice.

Please note that we will not present a cross-country comparison given that the participating countries represent diverse contextual aspects (e.g., educational systems, teacher education, population, etc) which we cannot account for in our study design. In addition, our data samples are not representative nor include necessary variables to allow us to make valid comparisons. However, for the purposes of this report and in alignment with the EQui-T project, our findings are vital and provide us with key insights that we believe are critical for further developing the field of OIER and teachers' knowledge and practices.

9.1 Key findings

Across our data for the five participating countries, we have identified some key findings, these include teachers': 1. limited understanding of OER; 2. lack of understanding of licenses and their pragmatism; 3. reasoning for using digital resources; 4. assessment of the quality of resources; 5. development and sharing of OER; 6. use of platforms and hindrances; and 6. needs for professional development. In the following we will elaborate on each of these key findings and address potential implications.

9.1.1 Teachers' understanding of OER

Across our survey data of the five participating countries, the respondents – consisting of pre- and in-service teachers – report that they find the definition of OER clear, and are familiar with the concept of OER. However, throughout the interviews it is clear that their understanding of OER varies, is limited to certain aspects of OER and occasionally erroneous. Given the benefits of OER, in particular for inclusive education as described in the introduction, this differing and limited understanding of OER is challenging. Yet, it is in line with previous research, e.g., Baas and colleagues' (2019) study showed "Current awareness is limited as teachers do not know how to recognise OER" (p.5), and these are oftentimes "understood as equivalent of all available digital resources" (p.8). Our finding related to teachers' lack of proper knowledge and understanding of OER has several implications. First of all, there is a need for professional development within this theme, which should be addressed in teacher education, and for in-service teachers. Secondly, the creation or further development of national or regional repositories of digital resources could help increase the visibility of open inclusive educational resources (OIER).



9.1.2 Lack of understanding of licenses and pragmatism

Across the data, another main finding related to teachers' limited knowledge of OER was identified in terms of that they seldomly connect digital learning resources to licenses, privacy and rights. This is in accordance with Baas et al. (2019) who also emphasise the importance of licenses stating, "Licenses on the resources provide information on how teachers can use OER, but these require teachers' conceptual awareness of OER and how they differ from other digital resources" (p. 2). In their integrative literature review, Farrow et al. (2024, p.11) also identified "a widespread lack of understanding about open licenses". In our understanding, this is a critical finding and has several implications for practice, which both teacher education and schools need to take into account. Especially, because as shown in our data the majority of teachers already use and highly value digital resources (see section 9.1.3 for more details) for their teaching and learning practices. Along with their limited knowledge of licenses and privacy issues in the context of OER, the teachers' emphasising benefits of digital resources take a pragmatic approach. Teachers use the digital resources they identify as relevant for their context, without further concerns about copyright, or licensing. In their decision-making, teachers prioritise if the resources are useful for their students' engagement and learning, over legality, as we can see in the next section.

9.1.3 Reasoning for using digital resources

Our findings are in line with those from Baas et al. (2019) "most teachers use resources based on their pedagogical needs, irrelevant of whether or not these resources are open" (p.6). Firstly, we find that most teachers use digital resources to meet their students' varied needs (e.g., gender, interest, competence level, physical or psychological needs). In other words, teachers emphasise using such resources for providing inclusive education. Secondly, the teachers use digital resources for engaging their students (e.g., with more visually appealing, timely relevant, age and language appropriate content). Interestingly, throughout our interview data teachers, when explaining why they are using digital resources, set very little focus on reasons benefitting the teachers themselves primarily (e.g., saving time, less effort, convenience). Seemingly, the teachers have shifted from use of digital resources as part of a hype, expectations from others (leadership, society) or as an add-on to their own teaching towards more agentic and transformative use (Siddiq et al., 2023). In this regard, we relate to the SAMR model (coined by Puentedura, 2006; 2013) which presents strategies for classroom technology implementation at four stages, i.e., substitution, augmentation, modification, and redefinition – here the first two levels, *substitution* and *augmentation* present a simple use of



technology in pedagogical practice, e.g., simply replacing traditional materials with digital ones. The next two stages add an advancement in terms of technology integration: *modification* and *redefinition*. These are explained as more novel and immersive use of technology – allowing for the creation of new tasks, previously inconceivable (Romrell et al., 2014). The latter is visible in our data, in fact, teachers were very explicit about the need for resources providing interactivity and possibilities for simulation and further possibilities for modifications and interaction for their students.

9.1.4 Assessment of the quality of resources

Teachers in our data approach the assessment of the quality of resources they identify through different steps and using different methods. However, it is quite consistent across the data that they first evaluate the material going through it themselves – in other words, employing personal criteria such as fit to their students, curriculum, and pedagogical needs and trusting their own professional knowledge. Secondly, recommendations from their colleagues are highly valued, and used as a criterion when considering the resource. Seemingly, very few apply formal criteria, e.g., frameworks developed by experts, literature and theory. This is interesting and understandable, however, also signalling that there is a lack of formal framework that are clear and easily applied. A situation that might benefit from the Criteria Catalogue developed in the Equi-T project²⁷. Furthermore, our result show that criteria such as up-to-datedness, aesthetic design, and whether the resource was shared by trusted peers or colleagues are also used in quality assessment. Surprisingly, metadata (such as author information) is generally considered the less important criterion in evaluating the resource. However, the meta-data is also something the teachers across this study report as important when evaluating platforms, as shown in sub-section 9.1.6.

9.1.5 Development and sharing of digital resources

Our findings show that most teachers modify and adapt the digital resources they identify before using them, thus most are involved with re-creation. We also see some examples of teachers creating materials. This can be the case in situations where they do not find relevant material for their needs. Further, teachers in our data report that they share material with their colleagues and in more closed circles such as school learning systems. From our data, it is quite clear that a very small number of teachers share their materials on open platforms reaching out widely. Although, Estonia here, is

²⁷ The Criteria Catalogue is available here: <https://equi-t-academy.eu/en/criteria-catalogue/>



showing a different situation. The reasons for not sharing are that they lack knowledge of appropriate sharing and platforms, unsure about the relevance and fit for others, and do not feel confident nor comfortable in terms of copyrights, etc. Teachers tend to apply different quality criteria when evaluating their own resources and resources they are retrieving (Reinken et al., 2021 p.37). We can see in our interview data a certain reluctance to share resources that could be linked to what Greiff et al. (2022 p.353) named “a fear of criticism of own OERs by colleagues and peers”. We identify the lack of sharing as critical, given that our data also show that teachers highly appreciate and benefit from open educational resources. Taking an overall perspective across our findings, we argue that there is a need for more structured support for professional development within this domain together with structural support as reliable repositories from educational authorities.

9.1.6 Use of platforms and hindrances

Our findings show that teachers on the one side use a vast number of sites and platforms when searching for teaching and learning resources. In fact, more than 40 unique names have been mentioned per country. On the other side, the teachers face common challenges and hindrances related to platforms and sites when searching for educational resources. Teachers in our data, for example, explain not knowing where to find resources. An issue that is covered across research literature (e.g., Reinken et al. 2021, p.38; Perifanou et al. 2023, p.316). One of the most critical requirements for teachers related to platforms is ease of navigation and access. Those that mention using official or governmental repositories also describe these as difficult to navigate. Indeed, many teachers in our data miss official repositories of high-quality. Along these lines, teachers in our data also describe paywalls, complicated registration processes, excessive advertising, and a lack of effective search filters as hindrances. These barriers are also described in literature. Greiff et al. (2022, p.353) present the “fear of being overwhelmed by an untransparent search structure” as a main barrier to use OER. Farrow et al. (2024 p.15) discuss the technological barriers of repositories: e.g., search mechanisms, poor structure, lack of user-friendly interface. In other words, the teachers emphasize need for easily accessible and navigable, well-structured and informative repositories. Thus, we suggest local authorities in each country lacking such platforms initiate ways of meeting these needs. And those that already have platforms for sharing OER, such as Estonia, review and update to meet the needs described by the teachers.



9.1.7 Professional development

A substantive number of the teachers in our data across the five countries show a wide interest in further training. This interest is further detailed in the interviews, in which the teachers specifically request practical training on how to find and evaluate OER, apply and understand licenses, and use Artificial Intelligence (AI) for content creation and adaptation to students' needs. Moreover, they mention an array of preferred formats including flexible online and/or asynchronous modules or courses that offer credits (ECTS). These formats are specifically mentioned because of the flexibility they provide in taking the course at the teachers own pace and time, e.g., in the afternoon, so it does not affect their students. Another concrete suggestion is to provide professional development at school - for all teachers. This suggestion was backed by emphasis on “lifting all teachers” to achieve increased knowledge and further development of practice compared to only one teacher becoming more proficient.



10. Conclusion and future directions

Our findings across the five participating countries; Austria, Estonia, Italia, Norway and Spain, reveal a dichotomy between the extensive use of digital teaching and learning resources and the lack of understanding of OER. While teachers are deeply engaged in the use of digital resources for their students' needs, learning, and engagement, several individual, local, and systemic challenges remain that hinder the full potential use of OER for inclusive education. Clearly, at an individual level, the teachers lack sufficient knowledge and awareness of OER, as well as licenses and rights. Moreover, most teachers in our data report that they do not collaborate within the context of OER and pedagogical practice – they work individually when identifying, modifying, adapting and creating educational materials. From our data it is not evident whether this is a general pattern – that teachers work individually when planning teaching and learning, yet this is the case within the context of this study. Further, at an institutional level, this indicate that the teachers seem to lack support and leadership, to guide their use of OER, and collaborative environments to further benefit from using OER in their teaching and learning.

We would like to emphasise that, in our data, inclusive education is one of the primary drivers for the adoption of digital resources. Teachers utilize these tools to facilitate differentiation and personalization. By adapting digital content—such as simplifying language, adding visual aids, or utilizing AI for creating more up-to-date and age relevant modifications or content—teachers are actively working to remove barriers for students with diverse educational needs and those from diverse backgrounds. Clearly, teachers as professionals connect the importance of fostering student motivation, through adaptive teaching to improve their students' learning.

We conclude that teachers demonstrate a high degree of professional autonomy when evaluating resource quality. In this regard, they prioritise pedagogical relevance and meeting their students' needs over metadata or formal criteria – or, as emphasised by the teachers, they might simply not be aware of formal criteria to evaluate open resources for teaching and learning. Further, largely most teachers adapt, develop and share OER – yet the latter is only done locally and with close colleagues. Overall, these findings suggest the need for supporting the teachers with framework or guidelines to use, create and share OER.

Further, our findings show that complex navigation and lack of high-quality official repositories act as a significant barrier. To ensure higher engagement with OER, platforms must prioritize intuitive design, open resources that are easily adaptable and robust search filters that allow teachers to find inclusive materials efficiently.

Last, and in accordance with the teachers expressed needs, there is a demand for structured professional development that moves beyond basic digital literacy.

In summary, while the technical infrastructure is seemingly largely in place, the transition to a truly open and inclusive educational ecosystem requires a concerted effort to enhance teachers' knowledge and competencies, in addition to need for educational systems catering for better structures and resources to support the goal of equitable access to high-quality education for all students.

Acknowledgements and declaration

We would like to thank the Erasmus+ teacher academies program for supporting the EQui-T project (European Quality development system for inclusive education and Teacher training) and this study conducted within its framework.

We would also like to express our gratitude to all project partners for their contributions throughout all phases of the work. This includes the development of survey and interview instruments, conducting, transcribing, and translating of the interviews, and finally reviewing and revising this report. Last but not least, we would like to extend our sincere thanks to all the in-service and pre-service teachers who participated in our study; their contributions have provided immensely valuable insights.

Declaration

We clarify that large language models (LLMs), such as artificial intelligence chatbots or similar tools, were not utilized in the preparation of this report. More specifically, AI has not been used for the preparation or analysis of the data, nor for writing of the text presented in this report. Consistent with the project's methodology, one team from the project analysed all data to ensure consistency and lower bias (see section 3, Method).

Funding and Disclaimer

The EQui-T project has been funded with support from the European Commission under the Erasmus+ Teacher Academy Programme (Project no: 101104449). This work is part of Work package 4. Views and opinions expressed are, however, those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

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Appendix A

Survey – K-12 teachers and student teachers

In this short survey we are interested in knowing more about which platforms teachers and teacher students use for searching for and sharing (digital) resources for teaching and learning. The results will be used to develop guidelines for successful dissemination of open educational resources (OER). This survey is part of the ‘EQui-T’-project ([European quality development system for inclusive education and teacher training \(EQui-T\)](#)), which aims at contributing to the quality improvement of inclusive education in the European context. The project focuses on the development and exchange of inclusive open educational resources.

Thank you for your interest in participating in this survey. Your expertise helps us to develop guidelines and provide you and other teachers with useful platforms, tools and programs to create a pool of freely available, safe and adaptable materials for all teachers.

Privacy policy *translate from previous version

Please read the following information regarding the use of data collected through this survey. If you have any further questions, please feel free to contact us. You will find the contact details at the bottom of this page.

Background and purpose of the study

The three-year Erasmus+ Teacher Academy project ‘EQui-T’ (European quality development system for inclusive education and teacher training) aims to improve the quality of inclusive education in the European context by opening up the possibility to identify, create and share high-quality inclusive teaching materials in the form of Open Inclusive Educational Resources (OIER) and to promote transnational cooperation and exchange of good practices. The project consortium consists of universities and university colleges in Austria, Spain, Italy, Estonia and Norway. For more information about the project, please visit our [website](#).

Your participation in the study

Participation in the study is not associated with any disadvantages or risks for the participants. The project/study has been reviewed by the Ethics Committee of the University of Graz.

Your participation in this study is **voluntary** and a withdrawal from the study is possible at any time without giving reasons. If you agree to participate, you are giving us permission,

- to collect information about you,
- to conduct the study with the data obtained,
- to use the collected data/information in anonymised form for analysis and publishing in project reports and other publications (e.g. posters, dissertations).

In order to proceed with the survey, the following statements need to be answered with „Yes“.

If you have any questions regarding privacy and data protection or would like to withdraw, please contact <insert respective contact person’s e-mail address from each partner country>. *

	Yes	No
I confirm that I have read the participant information.		
I agree to participate in this study.		



I am aware that I can withdraw from the study at any time.		
--	--	--

ATTENTION: You have to agree to all four points in order to continue the survey.

1. Please enter your code in the field below.*

You construct the code including the first two letters of the city in which you were born, your birthday and the last two numbers of your address.

For example:

City of birth: GRAZ → GR

Date of birth: 4th January → 04

Address: Universitätsplatz 1 → 01

Then the code is: GR0401

Please write your answer here: _____

Note. In case you request the deletion of your information from the dataset after completing the survey, we need this unique code to be able to identify the dataset that needs to be deleted.

- Background information-

2. Please enter your gender. *

- Male
- Female
- Other/no answer

3. Please enter your range of age. *

- 18-25
- 26-35
- 36-45
- 46-55
- 56-65
- +65

4. Are you a pre- or in-service teacher?

- pre-service teacher (currently in teacher training)
- in-service teacher (teaching classes)
- both (in teacher training, but already teaching classes)
- other

4a. How many years in total have you been working as a teacher?

Condition: If 4 "in-service teacher" or "both" is selected.

_____ years

4b. At which level(s) are you currently teaching?*

Condition: If 4 "in-service teacher" or "both" is selected.

- Primary education (~6-9 years old)
- Lower secondary education (~10-13 years old)
- Upper secondary education (~14-18 years old)
- Other

5. In which country are you currently studying and/or working as a teacher?*

- Austria
- Spain
- Estonia
- Italy
- Norway

o Other: _____

6. In which discipline/subject area are you currently teaching or going to teach when you are an in-service teacher? (more than 1 answer possible)

- Language
- Natural science
- Social science
- Music, Arts and crafts
- Mathematics
- Technical subjects (e.g., informatics, coding/programming)
- Inclusive education (e.g., as a support teacher)
- Other subjects (e.g., religion, cooking, physical education)

The following questions are on the topic of open educational resources (OER). Please note that no prior knowledge on OER is required to answer the questions.

Let's get on the same page first and have a look at the definition of OER.

-OER-definition-

Many teachers use freely accessible materials for their lessons and/or publish materials that can be freely used by others. Some of these materials are classified as Open Educational Resources, or OER for short.

Per definition, OER...

- are teaching, learning and research resources in any form (i.e., digital or analogue)
- are public domain (copyright expired) or published under an open licence
- are accessible, usable, editable, and free of charge
- may be passed on without or with minor restrictions

OER include all types of learning materials: images, videos, music, podcasts, worksheets, text documents, presentations, digital textbooks, digital learning applications (e.g., learning games, apps), content in digital learning environments (e.g., Moodle) or massive open online courses (MOOCs).

Regardless of the type, to be labelled as an OER, the materials have to be open-licensed (e.g. Creative Commons-Licences, such as CC0, CC-BY or CC-BY-SA), which ensures that anyone can legally and freely copy, use, adapt and redistribute them.

7. Have you ever heard of the term "OER" before this survey?*

- Yes
- No

* Note: No prior knowledge is required to answer this questionnaire.

7a. Before the survey, have you known about the definition of OER (as stated in the introduction)?

Condition: if 7 is Yes.

- Yes
- No

7b. Before the survey, have you known that freely usable materials can be allocated with or published under a license?

- Yes
- No

Platforms

8a. How often do you search for educational resources online (e.g., text, worksheets, images, video clips, apps, games, simulations, etc.)?

- rarely (approx. 1-4x per semester)
- sometimes (approx. 1-3x per month)
- often (1x per week or more)



- never

8b. Why did you never search for educational resources online and if relevant, how else do you search for educational materials?

Condition: if 8a is 'never'

Please type your answer here: _____

9. Please name the platforms you use for searching for and/or sharing educational resources.

(open question and the answers will be transferred to the next question)

Condition: if 8a is any of the three other options than 'never'

- _____
- _____
- _____
- _____
- _____

10. (answers from previous question) Please explain shortly why you use these platforms for searching for educational resources.

Condition: if answered 9

11. Which format(s) do you prefer when retrieving educational resources? (can select several options)

Condition: if 8a is any of the three other options than 'never'

- videos
- images
- graphics
- games
- documents (e.g., word, pdf, txt)
- audios (podcast, sound-files, radio)
- spread sheets (e.g., excel)
- simulation programs/tools
- other: _____

- Quality criteria-

12. Which of the following requirements must a platform meet for you to use the resources it contains? Please rate how important the following criteria are to you. The platform has to... (Scale 1-5: 1 = Not at all important, 5 = Very important)

- be from known publishers and/or official institutions: 1 2 3 4 5
- provide information on the usability of the educational resources for the students: 1 2 3 4 5
- provide information on accessibility of the educational resources: 1 2 3 4 5
- provide information on how the resource can be used, modified and shared (licenses, etc.): 1 2 3 4 5
- provide information on the adaptability to a diverse group of students: 1 2 3 4 5
- be updated regularly: 1 2 3 4 5
- be easy to navigate to find the educational resources: 1 2 3 4 5
- include instructional information on the educational resources: 1 2 3 4 5
- Other: _____

*Explanations:

*Usability is about making products easy to use and includes how easy it is for users to learn, apply, and memorise the design and perform tasks.

*Accessibility refers to the degree of which a product or activity is usable for people with disabilities (physical, sensory, cognitive, or learning disabilities).

*Adaptability refers to the possibility of making changes or adaptations according to the needs of the learners.

13. How do you assess the quality of a digital learning resource before using it?

Please rate how important the following aspects are to you. (Scale 1-5: 1 = Not at all important, 5 = Very important)

- Comments/reviews/ratings of other users
- Metadata (e.g. author information)
- The aesthetic design
- Up-to-dateness
- I review it thoroughly (e.g., the appropriateness of the difficulty level for my students, the accuracy of the content).
- shared by other teachers
- shared by other educators (e.g., professors, researchers, teacher educators)

13b. Are there other aspects you emphasize when assessing the quality of a digital learning resource before using it? Please describe shortly _____ (open ended)

14. How often do you (have to) modify or adapt a learning resource before you (can) use it in teaching? Answer options: Never, rarely, sometimes, often, always

- Sharing -

15. What do you modify or adapt before using the materials in classroom?

(Condition: 14: if any other option than “never” is selected)

- change font/font size
- adapt content (e.g., change individual words or names, ...)
- adjust the level of difficulty (e.g., explain difficult words, change the complexity of sentences, etc.)
- change images (e.g., better resolution, ...)
- adapt towards better representation of diversity (e.g., more gender-sensitive language, more diverse characteristics of people, ...)
- adapt to the needs of the students (e.g., remove barriers, provide materials in different difficulty levels, add subtitles/...)
- add concrete examples
- add exercises/tasks

15b. Are there other aspects you have modified or adapted before using the materials in your classroom? Please describe shortly. _____ (open ended)

16. Have you published (shared via a respective platform) any of your materials yet?

- Yes
- No

17. What kind of material have you published so far? (Response categories, same as from Q11:

(Condition if “yes” on question 16)

- videos
- images
- graphics
- games
- documents (e.g., word, pdf, txt)
- audios (podcast, sound-files, radio)
- spread sheets (e.g., excel)
- simulation programs/tools



17b. Are there other types of materials you have published? Please describe shortly.

_____ (open ended)

(Condition: If 16 "Have you published your materials yet" is "yes")

18. Please indicate where you have published your materials so far. (open answer)

(Condition: If 16 "Have you published your materials yet" is "yes")

19. Please indicate under which license your materials have been published. If no license has been granted, please enter "none".

(Condition: If 16 "Have you published your materials yet" is "yes")

20. If (some of) your materials have no license: For what reason has no license been allocated?

(Condition: If 16 "Have you published your materials yet" is "yes")

21. How often do you share educational resources on digital platforms? (options: once a week, once a month, once a semester, once a year)

(Condition: If 16 "Have you published your materials yet" is "yes")

22. What are the reasons for you not to publish your material(s)? (open answer?)

(*Condition: If 16 "Have you published your materials yet" is 'no')

-Experiences with Sharing and Feedback- (condition question 16 – if yes)

23. How often do you receive feedback from other educators on the educational resources you have shared? (Never, rarely, sometimes, often, always)

24. How important is constructive feedback from other educators for you to continue sharing educational resources? (Scale 1-5: Not at all important – Very important)

25. Have you ever experienced that an educational resource you shared was misused or misunderstood by others? (Yes, no)

26. If yes, what do you think was the reason? (Open answer)

-Professional Networks-

27. What types of teaching and learning resources do you miss the most on the platforms you use? (Open answer)

28. How often do you actively exchange teaching and learning materials with your colleagues (if you are an in-service teachers) or co-students (if you are a pre-service teacher/teacher student)?

a. materials you created (Scale from 1-5; 1= never; 5= daily / always)

b. materials you found online (Scale from 1-5; 1= never; 5= daily/ always)

c. materials where you are not sure about the quality (Scale from 1-5; 1= never; 5= daily/ always)

d. materials that you believe are useful to other teachers/ children (Scale from 1-5; 1= never; 5= daily/ always)

29. At the end, is there anything else you want to share with us?

(open answer)

Thank you for your contribution.

If you are interested in following this project, please visit our [website](#) from which you can subscribe our newsletter and follow us on Instagram.

Also please feel free to write to us if you have any questions, are interested in the results or want to send us feedback [Mail-Adress – one from each partner country in the translated version].



Appendix B

Interview Guide: Understanding K12 Teachers' Use of Open Educational Resources (OER)

Information to the partners

In this section you will find information about the interview – for both before the interview and during the interview.

* Before the interview *

Interview participants and target group: you are expected to interview 6-10 teachers. And they should preferably represent a diverse group of teachers (e.g., teaching at different levels, subject disciplines, gender, high/low experience with OERs/ digital resources).

Participants should receive information about the project and study aims before the interview, including a definition of OER. See document named: Privacy policy_Interviews.

Background Information – ask the following 3 questions on background via your email contact with the participant or during the interview.

- A. What grade(s) and subject(s) do you teach?
- B. How long have you been working as a teacher?
- C. Educational background: e.g., highest level of education; further training.

* During the interview *

Introduction:

- a. Explain the purpose of the interview: You're exploring the use of OER to better understand teachers' practices, needs, and experiences.
- b. The focus is on your experiences and your views. There are no right or wrong answers and you do not need any specific background knowledge on the concept of OER.

Assure the teacher of confidentiality and that the data will be used in an anonymous format.

Example: Everything you say during the interview will be treated confidentially. All data will be anonymised and cannot be associated with you personally. In order to be able to pay full attention to our conversation and analyse it afterwards, I will record it. After the interview, the interview will be transcribed, anonymised and the recording will be deleted. Your data will be analysed together with that of the other participants from the different countries and the results will only be presented in aggregated form. Therefore, it will not be possible to draw any conclusions about you as an individual. The results help us to find out how teachers search for and adapt the use of OER for their lessons and how we can provide targeted support for this process.

Informed consent:

- c. Remember to inform the teachers that it is voluntary to participate and that they may, at any time, withdraw from the study/interview. Also, please hand them the participant information and privacy policy, and get their signature on the participant agreement.

***Background:** ask the three questions above if not already asked through email or other contact:

- A. What grade(s) and subject(s) do you teach?
- B. How long have you been working as a teacher?
- C. Educational background: e.g., highest level of education; further training.

Section 1: Understanding of OER



1. In the e-mail we sent you before this interview, we included a definition of OERs. Here is the definition again (show the definition). I would like to ask you to read through it again. We are referring here to the UNESCO (2019), which defines OER as: *“Open Educational Resources (OER) are learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others.”*
 - a. Do you have any comments on the definition?
 - b. Is there something about this definition you find unclear?
2. In your opinion, what do you think distinguishes OER from other educational resources?
3. Do you use OER in your teaching?

If yes, continue to section 2

If not, why have you not been using OER so far? Are there any barriers? *(give examples if the interviewee asks for clarification or examples: such as lack of awareness/not familiar with OERs, accessibility, or time? Have you not heard of it before?)*

-> for the researcher: if the participant is not familiar with OER or do not use them, go over to talking about digital resources for teaching and learning in Section 2.

Section 2: Usage of digital resources.

“Now, I would like to ask you about your use of digital resources for teaching and learning in class. Such resources can be videos, podcasts, pictures, digital texts, quiz, and so on.”

4. What types of resources for teaching and learning do you use? (for example worksheets, video, podcasts, learning apps, ...)
5. Which platforms do you usually use to find those resources? *(if needed: Where do you search for resources?)*
6. Have you faced challenges when searching for digital resources? If yes, what kind of challenges? Please describe briefly.
7. What are the reasons for using digital resources in your teaching for your group of students?
8. Can you please give a specific example of one time you needed to find a digital resource to meet the needs of your student group?
9. How do you assess the quality of a digital resource? *(If no answer, follow up with: What features are important for you when you identify resources for your student group?)*.
10. When you search for, create, adapt, or share digital resources – do you collaborate with colleagues? If yes, can you perhaps tell me a little more about what the collaboration looks like? Could you give me an example?

Section 3: Creation and sharing of digital resources

11. Have you ever adapted digital resources so that they better fit your teaching context or for specific needs?
12. Could you give me a concrete example or describe a specific situation in which you adapted or modified digital resources? What exactly did you adapt, for whom, and why did you make these adjustments?
13. Have you ever created your own digital resources?
If not: Why not? *Follow up if needed: Are there any challenges? What might encourage or enable you to begin to create OERs/digital resources?*

If yes:

- a. Can you please give an example? *Follow up with questions to get more details if needed: What kind of resources have you developed? And why?*
- b. Have you ever used an AI-tool to create digital resources? If yes, Which one? For which purpose? What was your experience?

14. Have you shared your digital resources? (skip this section if NO to question13)

If no: Why have you not shared your resources so far?

If yes: Where and with whom?

a. Why did you decide to use this particular platform/to share with your colleagues/...? (follow up, depending on previous answer)

b. Have you published the resource under a license?

If yes: Under which license?

If no: Was there a specific reason why you did not license your material?

c. Were there any challenges? If yes, which ones?

15. When creating a digital resource, to what extent do you consider adapting it to a diverse group of students? Can you provide a concrete example that illustrates what aspects you particularly focus on in this regard? (*if the participants seem unsure, provide examples, e.g., students with special educational needs, other first languages, etc.*)

Section 4: Platforms, preferences and Needs

Now, I would like to ask about the platforms you are using when selecting and/or sharing digital resources.

16. What are the most important features for you when choosing platforms for selecting or sharing digital resources?

17. Have you encountered any challenges when using platforms for digital resources?

If yes: Can you give an example?

Section 5: Further training

18. Would you be interested in learning more about how you can use, create and share Open Educational Resources (OER)?

If yes: What kind of training would you be interested in? (give examples: ECT-courses, courses, webinars, resources etc..)

Section 6: final thoughts

19. Is there anything else you'd like to share about your experience with digital resources?

Closing

1. Thank the interviewee for their time and insights.
2. Reiterate how their input will be used to inform better practices or improvements.
3. Ask if they'd like to receive a summary of the findings or be involved in future discussions about open educational resources.



Appendix C

Platforms cited in interview data

Country	Platforms cited	Total
Austria	Youtube, Anton, Kahoot, Lurs, Studyfix, Eduki, Pinterest, Canva, Worksheet crafter, Lern Max, Antolin, Checker Tobi, Pixabay, Chat GPT, Ideenreise, Zauber 1x1, Lernstübchen Grundschule, ISL Collective	18
Estonia	<i>No data</i>	0
Italy	Youtube, Kahoot, Wordwall, Canva, Book Creator, Rai Scuola, Rai Play, Rai Storia, Indire, Google, RAI Educational portals, University websites, Google classroom, Pianeta Bambini, Erikson, Chat GPT, Gemini, LOCSAS	18
Norway	NDLA, NRK, Google, Commonlit, Cappelen Dam, Skoleportalen, Skolen min, A-universet, Campus Inkrement, Facebook, Instagram, Tiktok, Youtube, Duolingo, BBC, Podcasts, Kahoot, Book Creator, Skoleskift, OneNote, Netflix, Notion, Vimeo, Chat GPT, Powerpoint, Aschehoug, Fremmedspråksenteret	27
Spain	Kahoot, Canva, ARASAAC pictograms, Live worksheets, Youtube, Geogebra, Google classroom, Google, Orientación Andújar, government/regional platforms, publisher platforms, INTEF, Instagram, The sounds of grass growing, My chatty bag, Carlos's first one, Moodle, CMap Tools, Powerpoint	19

Platforms cited in survey data (unedited text answers, unique names only)

Country	Platforms cited	Total
Austria	4teachers.de, Anton-App, Aufgabenpool.at, Baobab, BeKi, Bildung.gv.at, Canva, Chat GPT, Colourful classroom, Cornelsen, digi4school, easy4me, Eduki, Eduvidual, facebook, Frau Locke, Frau Moor Rasselbande, Frau Wolle, Freepix, Gmx-Mail, Google, Google Bilder, grundschule-arbeitsblaetter, grundschulkönig, Grundschullottchen, Helbling E-Zone, Herr Sonderbar, Ideenreise Blog, iDerBlog, Instagram, ISL Collective, KI, Klett, Knitsche, LearningApps.org, Lehrbücher, Lehrerbüro, Lehrmittelperlen, liveworksheets.com, Material Wegerer, materialguru, Metacom, methodenpool, Mohrs Rasselbande, Moodle, öbv, OESZ, Padlet, Pinterest, pixabay, Portal Austria, Private Plattformen von Lehrerinnen, Safari, schubu, Schule.at, Schulportal, scook, Segu, Sofatutor, Spielend-leicht-lernen, Twinkl, Übungskönig, UBZ, UK-Couch, Usearch, WhatsApp Lehrer Community, Worksheet Crafter, YouTube	68
Estonia	Opiq, AI, Alpa, bio.edu.ee, Canva, ChatGPT, Classroom, Diffit, Drive, e-koolikott, e-varamu, EIS (Examination Information System), etsy, Facebook, GENIALLY, github.com, Google, Google Classroom, Google Drive, google scholar, Insplay collection, Instagram, ISL Collective, IXL, Kahoot, KhanAcademia, Learning aps, Leonardo.ai, Live worksheets, Microsoft, Moodle, mozaweb, Padlet, PhetSimulations, Pinterest, Pixabay, Progetiigri collection, Quizizz, Reddit, scribd, self created website, Spotify, Stuumium, taskutark, Teachers Pay Teachers, thatquiz, Tife, tiktok, Tinkercad.com, Tpt, twinkl, Wayground, Wikipedia, wikimedia commons, Wordwall, your website, Youtube	56



Italy	APPSTORE, Arcipelago educativo, Bes sostegno Canva, Canvas, Case editrici online ChatGPT, Didatticarte, Erickson, Facebook, File, Gazzetta filosofica, Gemini, Giunti education, Google, Google Classroom, Google documenti, Google Drive, Google mail, Google Scholar, google workspace, Hub scuola, Indire, Instagram, Internet, Laborform, Libreria digitale, Libri, Moodle, Opensource, PAGES, Paleos, Pianeta bambini, Pinterest, Polemos, portale bambini, SAFARI, Siti internet, social, Teachy, Treccani, Unicef, Universita', Whatsapp, WeTransfer, Wikipedia, Word, Wordwall, YouTube	49
Norway	Aunivers, Copilot, digitale lærebøker, Div hjemme lagrede hjemmesider, Elevkanalen, Eric, Facebook, fagboksider, Fagtidsskrift, FN.no, Forlag, Google, helse norge, Instagram, LeapLearning, Malimo, Matematika.no, naturfagsenteret, NDLA, nett tv, nettsider til feks 22 julisenteret, Amnesty mm, NHI, NRK, Ori, Phet simulations, Salaby, SKole sin nettside, Statped, Teachingfuntastisc, tenk.no, Udir, Ulike nettsider fra utlandet, Vollebekk skole, Youtube	35
Spain	ARASAAC, Aula TEA, Blog educativos, Búsqueda de artículos científicos, Canva, CeDeC – Centro Nacional de Desarrollo Curricular en Sistemas no Proprietarios, CLASSROOM, Cmsptools, Educación 3.0, EDUCAREA – Recursos Educativos del Instituto Nacional de Tecnologías Educativas (INTEF), EL PRIMERO DE CARLOS, GENIALLY, Google, Google Classroom, google imagenes, Google scholar, Instagram, Junta de Andalucía, La ardilla digital, LinkedIn, Liveworksheets, LOS SONIDOS DE LA HIERBA AL CRECER, MI SAQUITO PARLANCHÍN, Moodle, Mundo Primaria, musciaeduca, ORIENTACIÓN ANDUJAR, Paddlet, Pinterest, Procomún – Red de Recursos Educativos en Abierto, Red de bibliotecas escolares, Slideshare, Symbaloo, Test English, Wordwall, youtube	36

Most cited platforms in survey data

Country	Platforms cited	Number of times cited
Austria	Eduki	49
	Google	17
	Pinterest	12
	YouTube	11
	Frau Locke	9
	Material Wegerer	9
	Worksheet Crafter	9
	Canva	8
	Instagram	8
	ChatGPT	6
Estonia	e-Koolikott	13
	YouTube	8
	Moodle	7
Italy	Google	35
	YouTube	19
	Pinterest	15
	Canva	7



	Wordwall	7
	Google Classroom	6
Norway	Google	7
	NDLA	6
Spain	YouTube	7
	ARASAAC	6
	LiveWorkSheets	6





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