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Charles University in Prague
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Charles University in Prague
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Choosing from a range of e-sources when planning lessons – a challenge for teachers

Jana Stará, Charles University, Faculty of Education, Prague, Czech Republic
Alžběta Vodrážková, Charles University, Faculty of Education, Prague, Czech Republic

Abstract

In this article, we report on a qualitative exploratory study in a primary school based on observation in classrooms and interviews with teachers. The aim was to find out what e-sources teachers were using during the mandated distance learning in the context of the Covid-19 pandemic and immediately after students returned to school, and how and why they were using them. The results show that teachers are not very familiar with the range of complex e-textbooks and their additional digital support offered by publishing houses. They believe they can find fun and interactive exercises on the internet on their own and in practice they do so, often unsystematically. The teachers' main criteria for selecting resources are attractiveness, fun and interactivity. This exploratory research shows that in the flood of different e-sources that teachers can use, it is even more crucial that the textbook plays a coordinating role. Within it, it is important to offer teachers high quality and goal-oriented resources that they can adapt, combine, and compile according to their own discretion and the needs of their classroom. At the same time, there is a need to focus teacher training on developing competences to work with diverse and fragmented resources.

Keywords: use of textbooks, e-sources, teaching resources, primary school teachers

Introduction

The role of the teacher is to constantly consider what educational content to use with students and how to use it. The teacher considers the educational content in relation to the compulsory curriculum, the needs of the students and other contextual factors. He or she usually has both textbooks and other print and electronic learning resources at his or her disposal, which he or she should evaluate and use creatively. Remillard (2005) identified one type of teacher as a teacher who participates with the textbook's text. This approach assumes that the teacher and the teaching resources are in a dynamic relationship with each other, and that the teacher is an active co-creator of the implemented curriculum.

We believe that in recent times, when the availability of diverse teaching resources has greatly expanded (e.g., Sikorová et al., 2019), the teacher's "participation with the textbook's text" is a factor that should be researched. This is important for curriculum and textbook developers and teacher educators, who should draw on how teachers work with and modify curriculum and textbooks and support them in being able to find, evaluate, use, and possibly modify different teaching resources effectively.

The use of educational technology to support active student learning has intensified in the context of the Covid-19 pandemic. It appears (Mhlanga and Moloi, 2020; Palau et al., 2021) that this may be

influencing the use of e-sources even in normal teaching conditions. Our article reports research that aimed to find out what e-sources primary school (ISCED 1) teachers use in their teaching, how these resources relate to other resources within their selection, and for what purpose and how teachers select these e-sources. At the time of data collection, distance learning was mandated as part of the Covid-19 pandemic, and therefore we were able to explore what e-sources teachers were using in these non-standard conditions and immediately after students returned to school.

Note: In this article, we use the term e-sources to mean any resources that are electronic and "resource" the teacher's practice (Trouche et al., 2020), i.e., which are used by teachers for student learning.

Selection of resources by the teacher

Trouche et al. (2020) state that teachers search for and select resources, modify them, and use them in class, which can lead to further modifications. This process could be individual or collective.

In research by Stará (2019), it was found that teachers in primary science and social studies lessons use printed textbooks in their preparation for teaching, but more as curriculum documents that provide them with the organisation of their lessons according to the topics that the textbook conveys. (Examples of such topics in primary social studies include the topic *The place where I live or The founding of the Czechoslovak Republic*.) When preparing for teaching, they often work on these topics at their own discretion, are not afraid to use e-sources, and mainly use suggestions from teacher servers or the internet in general. It is common that they do not take the treatment of the topic in the textbook much into account. The materials they select for teaching are chosen primarily in terms of their attractiveness to students, fun, interactivity, and authenticity (Hansen and Gissel, 2017; Peacock and Gates, 2000; Stará, 2019).

Research (Hansen and Gissel, 2017; Peacock and Gates, 2010) suggests that teachers do not have the time or are unwilling to devote the energy and time to evaluating textbooks and other resources for teaching, and often rely on available textbooks. Although they are often involved in the selection process, this selection is not always based on a systematic and competent analysis of these resources. Also, in their use of e-sources, they often proceed in an unsystematic way and do not evaluate them in terms of the content presented, and thus may not feel the need to consider the effectiveness of the didactic treatment of the curriculum that particular resources offer (Stará, 2019).

Availability of e-sources and their use by teachers

Many publishers nowadays publish e-textbooks or hybrid textbooks in addition to print textbooks. They also provide increasingly diverse and extensive digital services (Höhne, 2018).
Complex teaching resources are e-textbooks that

> … maximizes the convenience and effectiveness of learning by digitizing existing printed textbooks, to provide the advantages of both printed media and multimedia learning functions such as images, audiovisuals, animations, and 3D graphics as well as convenience functions such as search and navigation (Kim et al., 2010, p. 366).

In addition to the advantages mentioned above, which also include portability, the ability to highlight text and take notes on it, to place hyperlinks, and the ability to individualise learning texts (Li et al.,

2013; Stará, 2019), there is also talk of disadvantages of e-textbooks, which include eyestrain from electronic displays or poorer orientation in the structure of textbooks (Stará, 2019). Research by Stará (2019) found that those teachers who have e-textbooks and the appropriate technical equipment available use them to varying degrees, and those who do not use them do not feel a lack of e-textbook availability. Teachers who do use them highly value the illustrative nature, the possibility to check students' work in a more engaging way, and the possibility to provide students with information in a different, more illustrative way. They sometimes criticise the less interactive nature of e-textbooks and technical problems or imperfections (ibid., p. 153).

A study by Boticki et al. (2015) pointed out that e-learning using e-sources helps students to manage self-regulated learning and to establish their own learning goals until the final assessment of their own learning. Lam et al. (2020, p. 2) reported that e-learning encourages participation in learning activities and motivation and allows students to set learning goals independently and progress in their learning pathways at their own pace; the learning content can be accessed repeatedly such that students can revisit difficult concepts for clarification and the learning contents can be customised by teachers to attend to individualised learning needs.

In primary school, however, student self-regulated learning is probably quite rare. In So, Chen, and Wan's (2019) research in 11 primary school classes in Hong Kong, which explored perceptions and experiences of self-regulated science learning in an e-sources-supported learning environment, it was found that students need teacher support to be able to effectively use the system tools or prompts, to keep focused self-discipline, and to learn effectively. Students reported that they needed more support, such as making sense of concepts, problems, or information of dynamic media. The study found that due to the lack of teacher guidance, some tools (e.g., note-taking, search annotation) or prompts (e.g., open-ended questions) were not widely applied by the students. The research also highlighted the importance of providing opportunities for students' use of e-sources.

Effective teaching using e-sources

In general, effective teaching resources are those that contain a clear close link to the learning objectives that the lesson aims to achieve (Marzano and Kendall, 2008; Stará and Starý, 2019).

Systematic, complex e-textbooks are likely to ensure to a large extent that the objectives and the texts used are consistent in their didactic treatment. According to Chen at al. (2013, p. 324), e-textbooks with similar structures and layout to paper textbooks help students develop their reading habits. The structure of a paper textbook, such as table of contents, chapter headings, index, page numbers, are considered to be of great importance; the functions of e-textbooks like zooming, page flip, and navigating are also elements that users value. From the teachers' perspective, the management tools of e-textbooks for distributing assignment, searching and notes, implanting offline glossary, and synchronising contents and notes are very important. From the teachers' and parents' perspective, it is the assignment tools such as testing, homework assignments, and submitting the assignments via a built-in system. From the students' perspective, the note-taking tools enable them to take notes. Additionally, the unique features of note-taking tools can enhance students' note-taking abilities in and out of classes, including bookmarking, highlighting, and annotating (Chen et al., 2013, p. 324–325).

Mayer (2017) refers to the idea that people learn better from words and pictures than from words alone, but not all graphics or words used are equally effective. The criterion of entertainment may not be related to effectiveness.

Insights into what e-sources are effective are provided by Richard Mayer's Cognitive Theory (Mayer, 2012), which has been empirically validated by Molina et al. (2018) for its use in primary education

students in the field of geometry teaching. The study (Molina et al., 2018, p. 57) also stated that if texts and images are close together there is more efficient retention of content; when a slide is presented orally instead of as written text, there is more efficient retention of content; if images and oral narration are combined in a presentation, rather than images, oral narration and written text, there is greater efficiency in retaining content; and if text and images are presented together, instead of only text, a higher efficiency in content retention is achieved.

Three kinds of threats to appropriate cognitive processing during learning: too much extraneous processing (so a goal is to reduce extraneous processing), too much essential processing (so a goal is to manage essential processing), and too little generative processing (so a goal is to foster generative processing). (Mayer, 2017, p.490)

Next, Mayer (2017, p. 491–496) presents research findings on how to counter these threats, including, among others, how to eliminate too much irrelevant processing when teaching from texts. These include reducing superfluous words and pictures, highlighting essential concepts and pictures, not supplementing explanatory pictorial material with text, placing words near the corresponding graphic representation, and presenting related words and graphic representations simultaneously.

Research in this area has mostly been conducted with a population of older respondents, but there are also studies of preschool or younger school-aged children (Liu et al., 2013; Gordon et al., 2016; Jeung et al., 1997; Cook et al., 2017). A meta-analysis of research on narrative text comprehension and vocabulary expansion in children aged 4–11 years with the support of e-sources (Bus et al., 2015) found that e-sources provide significant support for children's learning of new words and comprehension of text in educational materials. On the other hand, prominent interactive elements in e-sources (hotspots and games) reduce text comprehension.

Research methodology

Research questions

In our exploratory qualitative research, we asked the following research questions to discover the main features of current primary school teachers' use of e-sources to gain insight before designing a largerscale study:

1. What resources do teachers use?
2. How do teachers choose the resources?
3. For what purpose do they use teaching resources?

We investigated the use of e-sources during the period of distance learning mandated in the Czech Republic due to the Covid-19 pandemic from 1st February to 15th June 2021 and immediately after. We believe that because the experience of distance learning may have influenced teachers' resource use practices, we perceive this area as still underresearched, and therefore our exploratory research is important.

Methods of the research and the data collection

To get answers for these research questions, we carried out observation in the classrooms and series of interviews with teachers.

The observer (one of the authors of this article) recorded any use of any teaching resource including e-sources in the lessons, the teacher's instructions that related to the use of this source, the activities based on the materials, and presumptive purposes of the use.

Given the nature of our qualitative exploratory research, research questions were not specified, nor were the resources whose use the researcher was to record during the observation specified in advance. In addition, the lesson activities based on individual resources were not specified in advance.

The observation took place with 4 primary school teachers in 3–4 lessons during the distance learning and in 3 lessons during regular teaching after the end of the mandated distance learning. The lessons comprised different subjects taught at primary school. The number of lessons observed is given in Table 1.

Table 1 *Observed lessons*

Observed lessons		
Teacher/Type of teaching	**Distance learning**	**Face-to-face learning**
Sára	Czech, maths, Czech 2, English	maths, Czech, social studies and science
Marcela	social studies and science, Czech, maths	Czech, maths, social studies and science
Kristýna	social studies, Czech, maths	social studies, Czech, maths
Dominika	social studies and science, Czech, maths, English	maths, Czech, social studies and science

Following each of the observations, an interview with the teacher was conducted to ask in detail about the intention behind the choice of resources used in the lesson, the purposes for using them and an evaluation of the effectiveness of the teacher's use of the resources. In addition to these short interviews after each observed lesson, two in-depth interviews were conducted with each teacher about their relationship to e-sources, their experience of using them, the purpose of using them, etc. The first in-depth interview took place at the time of the mandated distance learning, the second two months after the students returned to school.

Table 2 *Survey of research activities*

Stage	Activity	Time
1	Survey and interview design through expert validation, deciding the set of respondents, consent forms collection	September 2020
2	Distance teaching observation and short interviews about the observed lessons – data collection	October–November 2020
3	Transcriptions and data analysis	October–November 2020
4	In-depth interviews with teachers – data collection	December 2020
5	Transcriptions and data from stage 4 analysis	December 2020
6	Face-to-face teaching observation and short interviews about the observed lessons	February–April 2021
7	Transcriptions and data analysis	February–April 2021
8	In-depth interviews with teachers – data collection	March 2021
9	Transcriptions and data from stage 8 analysis	March 2021
10	Summarising – main features, key issues, key concepts	September 2022
11	Respondents' validation	October 2022

Research participants

The intention was to select participants with different approaches to the use of e-sources, different lengths of experience and different ages. The characteristics of the participants are shown in Table 3. All selected participants had an interactive whiteboard with a projector and a set of tablets to use in the classroom.

Table 3 *Respondent characteristics*

Teacher	Teacher's age	Length of experience	Grade	Expected approach to e-sources
Dominika	27 years	4 years	2	frequent use of other e-sources than e-textbooks
Marcela	53 years	20 years	3	daily use of e-textbooks
Kristýna	30 years	2 years	5	occasional use of e-sources
Sára	23 years	1 year	1	occasional use of e-textbooks

Participants were selected based on their willingness to participate in the research and to obtain informed consent for the research from parents and students. One of the authors used her personal contacts with teachers to select participants with different characteristics. Related ethical issues are analysed below.

Data analysis

Transcripts of the interviews were made. These transcriptions and the observation sheets then underwent a content analysis. MAXQDA software for analysing the interview transcriptions was used (Figure 1).

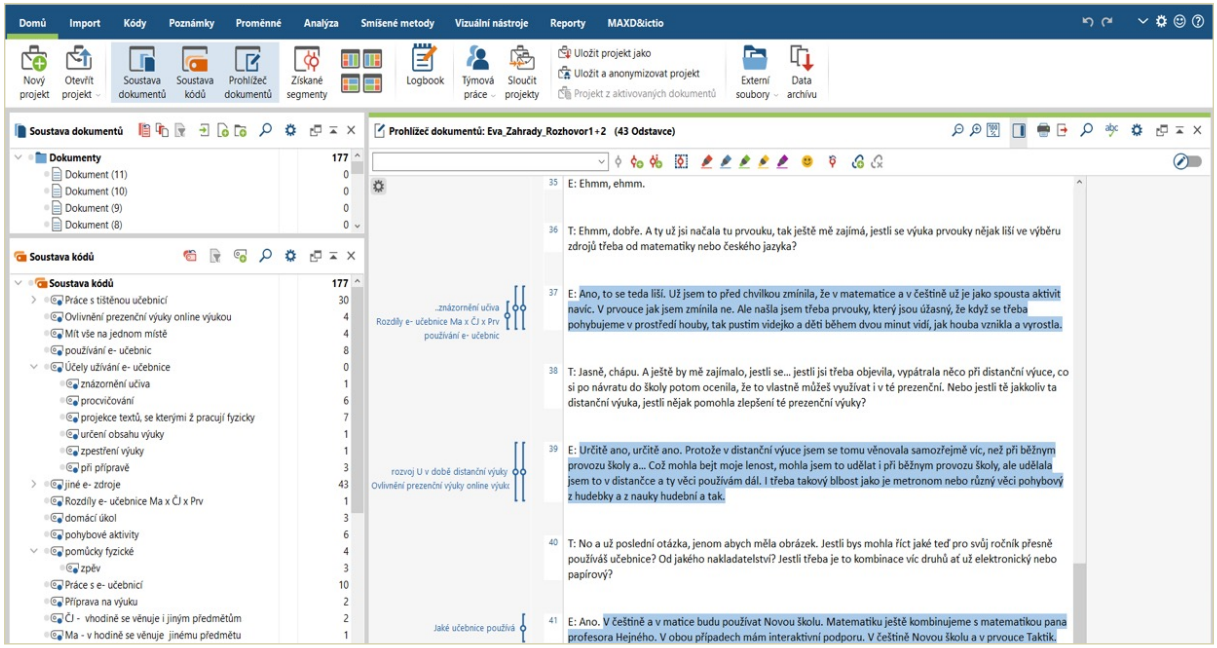

Figure 2 *The key concepts and their connection*

We approached the analysis of individual observation sheets gradually, always immediately after observing a class, so that we could focus on any phenomena and innovate the observation and interview strategy according to the results. Both authors of this article coded the data and participated in qualitative analyses.

During the open coding, we identified meaning units related to the research questions, which we then tried to combine into concepts. In the next stage, we tried to look for theoretical connections between concepts and formulate conclusions. Figure 2 illustrates the key concepts and their connections as results of the data analysis.

Research results

Cases of the surveyed teachers

Each teacher approaches the use of teaching resources differently. In the following, we will first describe each case with a heading that we believe is a characteristic statement used by the teacher in question and which is typical of her approach to teaching resources.

Dominika: "I would love to use more e-sources but there is no time to search."

For the less experienced Dominika, the thematic plan that guides her in planning her lessons, and therefore the resources she will use in each lesson, is crucial. This list of topics to be covered during the school year is conveyed to her by thematic plan, written on the basis of the school curriculum document, and the print textbooks she works with.

She supplements the exercises from the print textbook with exercises from internet servers created and shared by other teachers or business entities (rysava.websnadno.cz, matika.in., wordwall.net), mainly because she wants to make the lessons more varied and increase the level of students' attention and motivation. She also uses YouTube videos.

Before distance learning was ordered, due to the Covid-19 pandemic, Dominika searched for resources on the internet less frequently than during the period of the distance learning, even after the students returned to school. Dominika thinks that she should search for interactive learning tasks more; she feels that she is lacking in this area: "... I would love to use more of them, but there just isn't time to search it all, find out and learn new things." (Interview D1).

Dominika would appreciate if teachers had a systematic list of teaching texts and tasks that were internally structured and searchable for resources that could be used to convey or practise the knowledge or skills being built:

> If there was one list that had a few basic ones, maybe 10 different websites, even just simple ones. And it would say what can be found there and what can be drawn from them. So that teachers don't have to spend time searching for resources (Interview D1).

Dominika doesn't think that an e-textbook could provide this overview. She doesn't miss it: "I don't think there are e-textbooks at school [*a look indicating uncertainty*]. If I wanted to, I'm sure I could find or arrange basic version." (Interview D2).

She uses the Whiteboard app to project texts to the whole class: "Sharing the screen via that Whiteboard, that's probably what I use the most." (Interview D1, Observation D prez).

Marcela: "If there is a good e-textbook, the teacher has half the job done."

Marcela, unlike Dominika, uses e-textbooks extensively. They make it easier for her to prepare lessons:

> If I already know the material well and I have already taught it, I don't need to look it up beforehand because I know that this symbol means "pairs", and that one means "sorting word classes". But when it's new material to me, I view it ahead of time. Either before class or in the morning, in the afternoon… [smile] (Interview M1).

In addition, e-textbooks also allow Marcela to project the texts that students are working with physically. We have also seen the use of interactive exercises from the e-textbook, e.g., students adding numbers to sentences according to the picture and getting immediate visual feedback (Observation M prez). Marcela praised the collection of videos in the e-textbook that can be played to students in class to support the illustrative nature of the lesson:

> I found one for science which is amazing [expressive gesticulation]; for example, when we are doing the topic of mushrooms, I play a video and within two minutes the children can see how the mushroom comes to be and grows (Interview M1).

In addition to the e-textbook materials, Marcela also searches for other exercises from servers on the internet created by other teachers or entrepreneurs. She speaks highly of these materials: "This feels like someone did an amazing preparation for me. Before, the teachers had to cut something out or maybe draw and erase the board and only use stuff once. And here actually a team of professionals did it for me." (Interview M1).

In addition, Marcela searches for and uses other videos from YouTube, her family archive (a video of Marcela's family dyeing eggs before Easter), the Czech Television archive (Observation M dist). She also uses various applications such as noughts and crosses, Word Wall, a calculator, compass, dice, pairs game, or a metronome (Observation M prez, M dist).

Marcela argues that if e-textbooks provided enough interactive and illustrative materials, she would have no need to search for any additional e-sources:

> I felt like a detective before I researched what's related to what, where they offer what to do, how useful it is, because for example I came across a social studies and science textbook that was nothing but a scanned print textbook... In maths and in Czech there is already a lot of extra activities. Not in this social studies and science textbook, as I mentioned. (Interview M1). Marcela seeks out additional e-sources to make teaching fun for herself and her students: "… it's refreshing (using e-sources) for everyone – for me and for the children. I can't even imagine teaching just with my mouth, textbook, whiteboard, and notebook anymore. I love it and so do the children." (Interview M1).

According to Marcela, she started to use e-sources other than e-textbooks more due to the mandated distance learning. She has gained experience with them and still uses them even after the students' returned to school.

Kristýna: "If you know the topic, it's not a problem to find different teaching e-sources in a Facebook group."

Kristýna also plans her lessons according to the topics given by the textbooks. In addition, she uses other e-sources in her teaching, finding inspiration for searching them in Facebook groups:

> Probably the biggest source of those ideas is really the Facebook group where people like to post various random things and I maybe go through them or save them if I ever come across something and save it thinking that it would be useful at some point. Or Pinterest, it's when you've got an idea, like a theme, there's a lot of worksheets … (Interview K1).

She says that she does not create new resources for her own teaching, but uses what she finds on the internet: "Actually, I don't create anything..., I just download by topic whatever I find useful at that moment." (Interview K2). She admits that she searches for materials rather randomly, seeking out e-sources for fun and to practice the material in a fun, interactive way: "To keep them entertained, actually it's kind of like... it's a form of revision, but for them in a fun way, like a change or a sort of activisation. Like to kind of break the stereotype a little bit." (Interview K1).

In Kristýna's distance learning classroom, we observed multiple and varied e-sources from different servers and different applications (https://www.matika.in/en/, https://classkick.com/, Worldwall, www.maps.google.com), as well as downloaded and arranged pictures (e.g., of landmarks and buildings in social studies) uploaded online by another teacher (Observation K dist, Observation K prez).

> The distance learning taught me or made me use what you actually use normally as part of some kind of activisation or games at the end of a lesson maybe, so actually you had to include these, somehow it replaced traditional activities with groups, cards, slips of paper … (Interview K2).

In maths, she used an etextbook in her online teaching, which exactly guided the children's learning process, including explanatory passages, practice and feedback:

> We use Matýsek's Maths [https://www.matyskova-matematika.cz/multimedialniinteraktivni-ucebnice-plus/], which is great, it actually copies the printed version of the textbook and workbook that the students have with them. … so, anyone who forgets their textbook in any form has it there… And there are lovely videos. I've shown it a lot. And, even on the video, it shows when to stop it. [a pause] And then we counted. And then the checking was done that way. Or the children were instructed to check themselves after they worked it out (Interview K2).

She does not use other e-textbooks and does not miss them. She says she can find or think of activities for practice or illustrative support at least as good as those in the e-textbooks (Interview K2). She might use one other maths textbook where there are more sophisticated interactive exercises, but the problem is the higher purchase price of the textbook. Kristýna says that e-textbooks are a good enhancement to the teacher's work, but she can easily do without them.

In face-to-face learning, Kristýna projects schemes on the interactive white-board (writing possessive pronouns in Czech lessons). She also uses various online applications (countdown timer, https://www.google.com/maps, YouTube video tutorials), but she also makes extensive use of non-electronic resources (flashcards, dry erase boards, slips of paper with texts). She has partly transferred the use of the electronic maths textbook to face-to-face learning, as well as some apps.

Sára: "E-textbooks and other resources are great for projecting texts; the children know what to do."

Sára plans lessons based on what is in the thematic plan. At the beginning of the month, she looks at the plan, determines what she will do when and how. She drew up the thematic plan based on the text-

books and the school curriculum. She uses an e-textbook daily in mathematics, mainly for the purposes of illustration and to orient students in the print textbooks that they also work with, or to improve the children's orientation in the learning tasks:

> I use this one because it is the easiest and most understandable for the children. I don't have to explain here and show them the little pictures in the front [from the print textbook]. But they see and understand, and we can fill it in together already on the board (Interview S1).

She says that a well-designed e-textbook would be welcome, and that what she would use the most are visualisations that allow students to navigate the learning tasks:

> Sometimes children just don't understand what they are supposed to do. Like maybe they start writing first. And I tell them, no, first you're supposed to fill in the box with a printed letter… So sometimes what I've done is I've taken a picture of the page in the handwriting exercise book and projected it through the computer on the interactive whiteboard. But you must take a picture of it, email it to yourself, open it up on the computer, download it, and if it was like that in the Hedu [maths e-textbook], where I could open the example right away, that would be great, but I don't think that exists [expression of uncertainty] (Interview S2).

Sára also uses other e-sources and applications to enliven and entertain the lessons. We observed the use of pictures downloaded from the internet, the applications worldwall.net, umimecesky.cz and the Kahoot application. In addition, Sára says she plays music for students while they are writing, to relax them, and when teaching English.

She used apps and other e-sources less frequently in face-to-face learning. She replaces apps in face-to-face learning with other tools and activities, although she often finds inspiration for them or even textual material for them on the internet.

> I use a lot of different slips of paper, laminated tasks, cards that you just must collect, read, choose the right answers… So, I'll just download it somewhere, laminate it, scatter it in the corridor. Or even just write simple examples on... just a lot of paper cards like that (Interview S2).

Sára tried to use the tablets available at the school for the first time, with each student having one and working with the Kahoot app in her Czech language class, again mostly to enrich the teaching. Sára points out that this way of working enabled all students to be actively learning at the same time:

> And today, with the tablets, it was lovely that they could... that everyone has their own one. You put the code in and click, like they don't even have to share it, because the problem with the e-sources with those online exercises is that maybe eight kids out of twenty-three may come to the whiteboard. (Interview S2).

Sára reports that during distance learning she spent a lot of time, as did her school colleagues, searching for different online exercises. However, she says she and her colleagues at school started to create them themselves: "Then we started to make them ourselves because we had exhausted a lot of the ones we wanted in the past months, and we didn't want to use them repeatedly." (Interview S1) Sára searches for these resources randomly through an internet browser: "I just clicked through different sites like that and compared which exercises I liked better." She used these e-sources in distance learning and applies elements from that experience in face-to-face teaching:

And then I put them into tasks in distance learning. And now sometimes maybe when we have extra homework, I mean extra time, and I know I haven't prepared my own exercises, it's just easy for me to know that like here are good maths examples for speed. And so, I click on it, I project it and we have a five or ten-minute activity.

Basic research findings

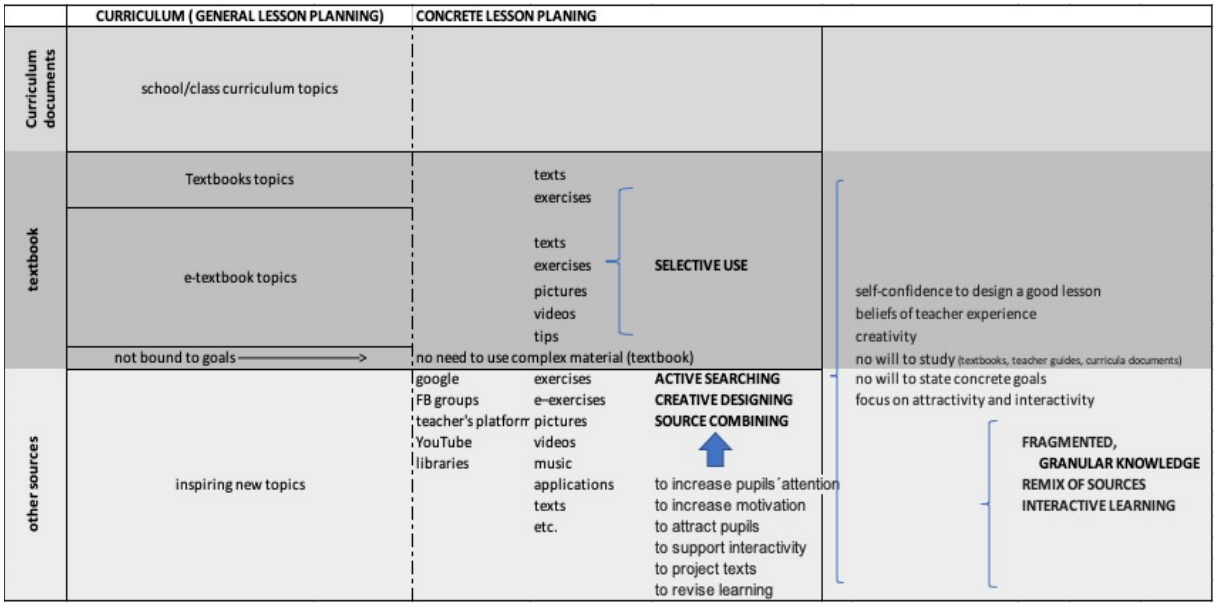

Figure 2 *The key concepts and their connection*

Figure 2 illustrates the basic concepts and the indicated relationships between them that the data analysis yielded. In the following paragraphs we summarise the essential ones.

The textbooks serve as curriculum documents determining the topics of the units

The teachers organise their teaching according to the topics given by the textbooks, whether they print or electronic, not only in elementary science and social studies, which was already found in earlier research (Stará, 2019), but also in mathematics, Czech and English. Thus, they use textbooks as curricular documents. They are guided in their lesson planning by the topics they use as keywords for internet searches; they do not explicitly consider the category of learning objectives.

The potential of e-textbooks is only used to a limited extent

If they use an e-textbook, they only have a license for the teacher, and they share text from the e-textbook with the students by projecting it on a smart board. There is no need for teachers to use student licenses (although they are sometimes available for free when purchasing a print textbook). What teachers like about sharing texts on the smart board is that the projections are visual; they make it easier to instruct students before they work independently or collaboratively, and they make it easier for them to prepare for teaching and manage the class. Two teachers make relatively frequent use (Marcela, daily) of the images provided by e-textbooks, audio-visuals and animations, highlighting texts and making notes on texts.

We did not observe teachers using the e-textbook for individualised tasks for students. Options such as synchronising content and notes, the unique features of note-taking tools, bookmarking, highlighting and annotating etc. are possible to use if each student has their own e-textbook license, which they did not in the observed cases.

Despite the relatively large offer on the market, two teachers use only one e-textbook for teaching one subject, one of them uses no e-textbook, and only one uses an e-textbook in all subjects. They do not seem to be very familiar with the range of e-textbooks and find it challenging to find out what each e-textbook offers. Apart from Marcela, they are not even motivated enough to do so. They are confident that they can find fun and interactive exercises on the internet on their own, which seems to be more enjoyable and accessible for them than navigating the range of complex e-textbooks and other digital support offered by publishing houses and learning how to work with them. They also cite the higher purchase price of some e-textbooks or technical problems in using them as reasons for not using them.

Teachers make extensive use of various e-sources, which they actively search for on the internet and creatively link and combine. They often search randomly; the main aspect is their attractiveness for students, the learning objective is not deeply thought out and expressed.

Teachers used a variety of e-sources in online learning and, relatively surprisingly, in subsequent face-to-face learning. In line with the findings of other research (Hansen and Gissel, 2017; Peacock and Gates, 2010; Stará, 2019), teachers' main criteria in selecting e-sources is attractiveness, fun for students and interactivity. Effectiveness of using these e-sources for students' learning is mentioned when each student has their own tablet and all are active at the same time. The teachers do not talk about the effectiveness of the e-sources in terms of supporting students' learning towards acquiring their specific knowledge or skills. E-sources are mainly searched for by teachers on teacher servers, and rather randomly; they get tips on resources from Facebook groups where other teachers share them. They show relatively high self-confidence in the skill of searching for e-sources. If they mention that the resource used is used to practice certain subject matter, it is mostly at the lowest levels of thinking (memorising vocabulary in English, lists of words spelt with "y" in Czech, orthography, etc.), and only rarely practice of more complex knowledge (working with google maps, etc.). They talk about the fact that they would welcome a systematic overview of suitable (fun, interactive) teaching topics in one place.

Conclusion

Limits

The qualitative exploratory approach chosen allowed us to find out how the four selected respondents select and use teaching resources and for what purpose they use them. This allowed us to understand more about their habits and logic of thinking about teaching resources and to better prepare for the design of future mixed-methods research.

A limitation of the chosen approach was that the participants were women to whom one of the researchers had an affiliation. Even if these were not family or close ties, this could have influenced the research results. On the other hand, in our opinion, this approach is justified, as the teachers in the first phase of the research were teaching online, thus entering the children's homes via video cameras and microphones, and therefore had to obtain informed consent from the children's parents and the children themselves that the researcher-observer would be connected to the teaching in addition to the classmates and the teacher. This required a great deal of cooperation from the teachers, several stages of negotiation with the parents, and a considerable administrative burden (to collect signed consent forms). It is clear that personal ties to the respondents played a positive role here.

Another limitation of the study was that all participants were women. However, in the Czech Republic, the proportion of men in primary education is only about 14.8% (Eurostat, 2021). In future research, the presence of male respondents will be sought. However, given the above, we believe that in such an exploratory study the absence of males can be tolerated.

Although data saturation could not take place due to the limited number of research participants, we believe that this study provided a deeper insight into the reality of the use of resources by primary school teachers, their thinking about these resources, and their needs in this area. In future research, we plan to expand the number of research participants, seek to saturate the data, and attempt to identify the patterns in teachers' use of e-sources (Cohen et al., 2018).

Ethical issues

The purpose and design of the research was explained to the participating teachers. They were then asked to complete and sign a consent form before the research commenced. They were asked to distribute a text to parents in their classroom, which described the research plan and purpose. After reading this text, parents were asked to sign a consent form affirming their consent to observe the teaching that their child would participate in, both the teaching that would take place via the platform that is commonly used during the time of mandated distance learning and the face-to-face teaching that would occur after the children return to school. The students were similarly approached by the teacher and the consent form was also sent to them via their legal guardians. In the first phase of the research, signed consent forms were sent by parents to the researcher, scanned by email or telephone, which parents then brought to school. In all informed consent forms, respondents were assured that the data were for research purposes only, were strictly anonymised and could not be linked to their child or school. The consent form used was that used by the university who funded the research in question.

Conclusion and perspectives

Our research shows that it is very important for primary school teachers to be aware of their own expertise and to know that they can participate in the selection of subject matter and choose the means of its delivery. We also reached similar conclusions based on previous research (Stará and Krčmářová, 2014; Stará, 2019).

According to the teachers, online learning was a valuable experience in searching and using various e-sources. The surveyed teachers tried to diversify the resources used in face-to-face learning with the intention of arousing students' interest, engaging them actively in learning and forming a dynamic lesson. In face-to-face learning before the Covid-19 pandemic, these were mostly non-electronic resources; in online teaching, many of these resources had to be replaced by e-sources. This then affected teaching when the students returned to school. The question is whether the increased use of e-sources in face-to-face learning will last longer.

There was not often a clear link between the resources used and the learning objectives in the lessons observed. We believe that this is a major problem in these days of wide availability of different learning resources with no guarantee of quality. These sources provide fragmented and granular knowledge content, and teachers do not have new competences that allow them to convey this content comprehensively (Roncaglia, 2018).

On the one hand, the commitment and creativity of teachers and their willingness to share with each other their tried and tested e-sources is valuable; on the other hand, it is not always possible – especially for primary school teachers who teach all subjects in their classrooms in many countries, and whose professional training is therefore highly multidimensional (Stará et al., 2020) – to ensure that they select teaching resources in line with their knowledge of the academic disciplines and that they set learning objectives that sufficiently challenge students while pursuing relevant content in terms of the academic discipline.

Based on insights from textbook theory and our research, we conclude that the dilemma of the requirement of teacher autonomy and, at the same time, the determination via teaching materials, described by Šeďová and Zounek (2009) in relation to the use of ICT, can be largely resolved by the fact that textbooks (including electronic textbooks and supplementary e-sources) enable teachers to choose from a variety of learning tasks, evocative stimuli, texts, visual material, etc. We believe that the current development of ICT allows the creation of such internally differentiated materials. In this area, it seems important to follow the insights from teaching theory that have been developing recently, especially through the development and validation of e-sources (Massa and Mayer, 2006).

It is necessary to bear in mind that textbooks may pursue relatively good and ambitious goals from the point of view of experts, but that teachers may have goals that are considerably lower (Knecht 2014) or different. Our interviewees' statements led us to realise that we cannot abstract away from the demands the teacher places on textbooks, relating to their attractiveness, interactivity, and authenticity.

Findings from textbook use theory (Peacock and Gates, 2010; Wilson, 1990; Dusenbury et al., 2003; Stará, 2011) indicate that there is a need for textbooks to not be overly complicated but to be clearly structured and to emphasise the developmental prerequisites of children of the relevant age. However, Schwartz (2004) states that navigating educational resources can be challenging, and that an overabundance of options can even cause the so-called Paradox of Choice.

The statements of our participants also indicate that they use e-textbooks and other teaching resources if they are user-friendly, and that teachers are not willing to spend too much time studying complicated e-textbooks. If the e-textbook does not engage them, they reach for other resources, with the risk that the learning objectives and the learning tasks they have chosen may not be aligned (cf. Stará and Starý, 2019; Stará, 2019).

Our research further suggests that it is not possible to assume that all teachers will use electronic textbooks in the near future. It is therefore important that print textbooks continue to exist (perhaps as an alternative to purely electronic textbooks), but these can also be internally differentiated and supplemented by the offer of additional e-sources.

We believe that our research has shown that there is a need to harness the creativity of primary school teachers and to allow them to freely select, combine and assemble into the whole lesson tasks and other teaching texts, including e-sources. It will be good if these tasks, texts, apps, and other resources are examined by experts. Teachers can then find them, among other things, as a package to supplement a print or electronic textbook. However, this package must not be too complicated.

Finally, it is important to invest time and resources in supporting teachers to familiarise themselves with the possibilities of individual textbooks, including their supplementary resources, and ensure that they can use e-textbooks without technical complications. Teacher education should foster teachers' competence to navigate the plethora of fragmented resources in a new ecosystem and to find ways to communicate a complex picture of the world to their students.

The conclusions of our research confirm what Roncaglia formulated in his monograph (2018): The content is in motion and is fragmented, granular. The vertical complexity that has been typical of book culture seems to have been at least partially sacrificed. We too, in line with Roncaglia (2018), ask: Is the age of the internet necessarily also the age of fragmentation? What strategies and tools can support greater attention to the ability to create and use – also in digital form – structured and complex content? Will new generations be able "to build an age of cathedrals" made up of complex digital content? How can schools and textbooks help this development? We believe that our research contributes in part to answering these questions.

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