# PRIMARY TEACHERS' ATTITUDES TOWARDS THE USE OF ELECTRONIC RESOURCES IN PRIMARY EDUCATION IN BULGARIA

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Abstract: Digitization in education is an evolving process which affects different aspects of education worldwide and Bulgaria is also following this tendency. One of the tools for digitalization of education is the use of electronic resources (e-resources). Different e-resources have been adopted increasingly in primary school classrooms making them an integral part of education. European policies are also supporting e-resources usage - a European Parliament resolution on New Technologies and Open Educational Resources<sup>42</sup> encourages the study and dissemination of good practices in order to support the efficient use of electronic resources in education, as well as conducting research to evaluate teachers' competences for the use of educational e-resources. However, there are limited researches in the literature about the use of e-resources in primary education and their findings are far from consistent (Chu et al., 2010). In the currently existing literature, the main emphasis is on the advantages and the potential of e-resources for improving the educational process. For example, some researchers found that the integration of electronic resources in the educational process have the potential to support the active learning of primary students (Vitanov et al., 2015). According to White & Manton (2011) e-resources have better quality and are more flexible than traditional resources and they provide better opportunities for learning, including a compliance with different learning styles. Some disadvantages of e-resources are also mentioned in the literature such as the potential risk for students to lack concentration during the classes knowing that they can access the e-resources later or the risk of getting inaccurate information from internet based e-resources (Purcell et al., 2012); (UNESCO, 2011).

Yet there is not sufficient data about teachers' attitudes towards the use of educational e-resources which data could be a valuable source for planning and implementing the integration of e-resources in primary education. Moreover, in order to provide quality education, higher education institutions which train the future primary teachers should be aware of primary teachers' opinions and needs and, on this basis, to search for effective strategies to improve their university courses or professional development programmes. The answer to the question: "What are the attitudes of primary teachers to the use of e-resources in primary education?" has a significant role in developing and implementing pedagogically effective curricula. Thus in this study the attitudes of 452 teachers towards the use of e-resources in primary education is examined. It discusses the teachers' attitudes in terms of the advantages and disadvantages they found in using e-resources in their everyday routine as well as the requirements that e-resources should fulfil in order to be used effectively.

Data includes an online questionnaire which was conducted during the beginning of academic year 2018-2019 and completed by 452 primary teachers from schools in different regions of Bulgaria. The results revealed that the surveyed teachers recognize well the advantages of e-resources which they mostly see as instruments for better visualising learning content as well as motivational instruments. They found disadvantages mainly related to the material and/or financial aspects of their usage. The requirements that e-resources have to fulfil in order to be effectively used in primary education according to the respondents are also discussed in the paper.

Keywords: electronic resources, e-resources, primary education, primary teachers training

### **1. INTRODUCTION**

Digitization in education in Bulgaria is a slow but inevitable process. It affects both administrative and pedagogical aspects of education but yet there is no regulation on the implementation of digitization components. One of the tools for digitization of educational process are electronic resources (e-resources). They have long been present in Bulgarian classrooms, but their characteristics, specifics and the approaches for their effective educational integration are not well studied. A European Parliament resolution (2014) highlighted that ensuring the quality of these resources plays a crucial role in their effective use and trust in them. European countries are expected to explore the potential of open educational resources in order to reduce the value of educational materials, but without neglecting quality. In general, e-resources<sup>43</sup> are defined as resources that require access to a computer or as products

<sup>&</sup>lt;sup>42</sup> European Parliament (25.03.2014) Resolution on New Technologies and Open Educational Resources, retrieved from:

http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+REPORT+A7-2014-0249+0+DOC+XML+V0//BG

<sup>&</sup>lt;sup>43</sup> In many studies, the term "digital resources" has also been mentioned, but in the literature the difference between digital and electronic resources is not defined. Generally, "electronic" is the broader term than "digital".

that provide a collection of data that are distributed on CD, via internet etc. (Ashikuzzaman, 2019), (Noreh, 2009). This broad definition is extended by many researchers who define e-resources as information stored in a digital format (Ahiazu, 2012); (Yabuku & Olatoye, 2015). For the purposes of this study the following definition will be used: *e-resource is a resource that requires access to a computer or other digital device and is used for educational purposes*.

The increasing use of e-resources in education is probably due to their advantages. For their main advantage, Ahiazu (2012) pointed the convenience that they provide to library users which are usually students from higher education institutions, while Sharma (2009) emphasized on the importance of e-resources as a factor for implementing quality distance education. However, there are limited researches in the literature about the use of e-resources in primary education and their findings are far from consistent (Chu et al., 2010). They emphasize mainly on the advantages of using e-resource. Reddy and Mishra (2003), as well as other researchers, pointed the advantage of using e-resources to save time and thus to provide more time for exercises. According to Vitanov, the integration of e-resources in the educational process could cover "a wide range of activities that support the active learning of primary students" (Vitanov et al., 2015). Other authors claim that e-resources have the potential to improve the quality of language learning (Owens, Hester, & Teale, 2002; Trillo, 2003, cited by Chu et al., 2010). White & Manton (2011) state that e-resources are more flexible and could provide better quality and better opportunities for learning than traditional resources.

Some disadvantages of e-resources are also mentioned in the literature. The potential risk for students to lack concentration during the classes knowing that they can access the e-resources later or the risk of getting inaccurate information from internet based e-resources (Purcell et al., 2012); (UNESCO, 2011) are some of them. The latest published project report for Trends in Digital Learning<sup>44</sup> identifies five key elements that teachers need to effectively and efficiently integrate digital resources into daily instruction in their classroom. These are: 1) planning time to work with colleagues; 2) classroom set of laptops, tablets or Chromebooks for student use; 3) technology support available when needed; 4) professional development; 5) internet access that is consistent, reliable and can support high bandwidth digital resources. If not addressed properly these elements (most of which are related to technological aspects of e-resource integration) could easily turn into disadvantages.

In Bulgaria, the introduction of ICT in education started in 2005-2008, with the implementation of the National Strategy for ICT Introduction in the Bulgarian Schools<sup>45</sup>. The main objective of this strategy and its Action Plan was the modernization of the education system and improving the quality of education in terms of digital literacy of the students. The specific objective of the program was to provide schools with computers and broadband internet. As a result of this strategy, schools were equipped with more than 65,000 computers, but actually soon after that they needed a renewal. A large number of schools manage to maintain their own facilities, but the rest do not have this financial opportunity, which makes them work with obsolete and depreciated equipment. In the period 2008-2011, within the framework of the national program "ICT in Schools" there were no significant actions for upgrading ICT facilities in schools and Ministry of Education funds were mainly spent on ensuring their Internet access. The program continues in 2014, expanding the scope of hardware renovation. In the first stage of the Strategy for Effective Implementation of ICT in Education and Science 2014-2020<sup>46</sup>, investments were planned for building a high-speed fibre optic network linking regional inspectorates and introducing a national e-platform. A refurbishment of facilities in schools was also planned, in particular IT rooms, which are currently in poor condition in many educational institutions in the country. Another point in the strategy was the provision of a wireless internet connection, which is currently missing in many schools in Bulgaria. Despite the fact that Ministry of Education is making efforts and investing in the renovation of the facilities, the fast pace in which technology is advancing is quite ahead of the equipment of schools. Another issue faced in schools is the lack of staff for maintaining and upgrading software and hardware. Of course, teachers are not expected to have such competencies.

All these factors could influence effective usage of e-resources in Bulgarian schools but still there is not sufficient data about teachers' attitudes towards the use of e-resources. Such data could be used for the successful implementation of e-resources in primary education. Furthermore, on this basis higher education institutions which train the future primary teachers could search for effective strategies to improve their professional development

 <sup>&</sup>lt;sup>44</sup> Project Tomorrow & Blackboard. (2017). Trends in Digital Learning Report. Retrieved from http://bbbb.blackboard.com/2017digitaltrends
 <sup>45</sup> Council of Ministers of the Republic Bulgaria. (2005). National Strategy for ICT Introduction in the Bulgarian Schools

http://www.strategy.bg/StrategicDocuments/View.aspx?lang=bg-BG&Id=398 <sup>46</sup> Ministry of Education. (2014). Strategy for Effective Implementation of ICT in Education and Science of the Republic of Bulgaria. Retrieved from https://mon.bg/upload/6543/strategia\_efective\_int\_2014\_2020.pdf

courses and programs. Lastly, the designers of e-resources could design their products according to teachers' needs. Thus this paper attempts to identify primary teachers' opinions and attitudes towards the use of e-resources.

### 2. METHODOLOGY

The research design utilized in the study is a mixed methods research – it combines elements of qualitative and quantitative data collection and analysis. This study attempted to answer the following research question: "What are the attitudes of primary teachers to the use of e-resources in primary education?".

**Participants:** An online questionnaire with primary teachers from different parts and schools of Bulgaria was conducted at the beginning of the winter term of academic year 2018/2019. A total of 452 teachers completed the questionnaire 90% of which were female participants. The teachers' distribution according to their schools' location, age group and professional experience is presented in table 1.

% of all respondents (N=452) % of all respondents (N=452) % of all respondents (N=452) from 21 to 30 36.4% 61.7% 27.2% Less than 3 years City Large town 17,0% from 31 to 40 28,3% From 3 to 5 years 22,3% 16,2% 12,2% from 41 to 50 29.4% From 6 to 10 years Town Village 5,4% from 51 to 60 12.2% From 11 to 20 years 11,1% 61 and over 1,9% More than 21 years 17,9% Prefer not say 1,1%

Table 1. Distribution of teachers according to their schools' location, age group and professional experience<sup>47</sup>

**Data Collection and Analysis:** Data was collected using an online questionnaire through Surveys Monkey tool. The questionnaire was built in 4 modules, related to different aspects of the study. For this paper only one of the modules is presented that corresponds to the research question – *Attitudes of primary teachers for the use of e-resources in education*. For the data analysis descriptive statistics is primarily used.

### **3. RESULTS**

Primary teachers' attitudes towards using e-resources were examined through several questions in the questionnaire. The focus of this study is to explore their views about advantages and disadvantages of using e-resources and the requirements that these e-resources should fulfil in order to be used effectively and efficiently in education.

### 3.1. Advantages of using e-resources in education according to primary teachers

For the question "What do you think are the main advantages of using e-resources in education?", teachers were asked to choose one or more of the listed options or add their own (see Table 2). The results presented below clearly show that almost 90% of respondents believe that e-resources provide better visualization of the learning content. These results fully correspond to the theory of multimedia learning (Mayer, 2001), (Atkinson, 2005), which emphasise on the potential of e-resources to present the learning content in a multimedia way and interactively.

Advantages of using e-resources in education	% of Respondents (N=452)
• enable better visualization of learning	
content;	88.9%
• motivate students;	63.3%
• provide opportunities for more exercising;	44.7%
• provide more effective student assessment;	14.8%
• save time;	32.7%
• other (please, specify):	3.5%

Table 2. Advantages of using e-resources in education according to primary teachers

Another advantage that teachers highlighted is that e-resources have the potential to motivate students. Having in mind that "digitally native"<sup>48</sup> students perceive better multimedia information (eg. through video and appropriate animations) and that the e-resources are usually multimedia resources, it is more likely that they respond better to students' needs and motivate them to learn. Nearly half of the teachers (45%) found it as an advantage that the e-

 <sup>&</sup>lt;sup>47</sup> In all tables the percentages are rounded to the first decimal, thus the final result may exceed or fall behind 100%. This type of rounding values is consistent with Eurostat's rounding rules (<u>https://ec.europa.eu/eurostat/statistics-explained/index.php/Tutorial:Rounding\_of\_numbers</u>).
 <sup>48</sup> A term introduced by Mark Prenski (2001) for the new generation of students who "natively" speak "the digital language of computers, video

<sup>&</sup>lt;sup>48</sup> A term introduced by Mark Prenski (2001) for the new generation of students who "natively" speak "the digital language of computers, video games and the internet" (<u>https://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf</u>)

resources provide opportunities for more exercises within the lessons. This result is closely related to the advantage that is considered by 33% of teachers – e-resources save time, which confirmed Reddy&Mishra (2003) statement. Since teachers have more time they could provide additional exercises for the students. Fewer teachers (15%) consider the provision of more effective student assessment by e-resources as an advantage. Probably, most teachers take into account the importance of a human factor in the assessment process and do not believe that e-resources could improve it. Other suggestion is that teachers do not know the e-resources that are designed for assessment. Such e-resources also have the potential to save time for teachers (mostly when assessing the whole class at once) as calculating the results and progress of individual students.

A total of 16 participants have chosen the option "Other" which required their free text answer. Many of these answers actually referred to "motivate student" option (answers like "raise interest and curiosity", "stimulate interest in students", "interesting and entertaining for students"). Two teachers noted that e-resources "are closer to the students learning style", which corresponds to their "digitally native" style. A primary teacher with over 21 years of experience expressed her expert opinion:

"E-resources bring diversity in my work as a teacher, and thus bring me closer to the world of children. They are growing in a technological world and this is more familiar to them."

Other points that teachers consider as advantages are that *e-resources have the potential to: differentiate learning content; improve children's digital literacy; develop thinking skills; develop technology skills; brings diversity in lessons.* Teachers also find e-resources a great convenience and point the fact that students can study independently and navigate easier in the e-resources.

Primary teachers' free responses clearly show their awareness and their good understanding of the benefits that eresources have the potential to provide in their classroom.

#### 3.2. Disadvantages of using e-resources in education according to primary teachers

Teachers were asked to identify the main disadvantages of using e-resources in education from a list, or to suggest other disadvantages. Table 3 presents graphically the summary of their responses.

Disadvantages of using e-resources in education	% of
	Respondents
	(N=452)
<ul> <li>require purchasing of additional equipment;</li> </ul>	60.4%
<ul> <li>need for maintenance of the equipment;</li> </ul>	52.4%
<ul> <li>require internet connection in the classroom;</li> </ul>	54.9%
<ul> <li>need of additional education of teachers to use them;</li> </ul>	33.4%
<ul> <li>need to training students to work them;</li> </ul>	15.5%
<ul> <li>require more time for teacher preparation;</li> </ul>	24.6%
<ul> <li>students get used to this way of presenting the learning</li> </ul>	44.3%
content and become demotivated by the traditional way of	
teaching;	
• other (please, specify):	2.4%

Table 3. Disadvantages of using e-resources in education according to primary teachers

The predominant responses are related to the technological, and to some extent financial aspects of the integration of e-resources - according to more than half of the teachers, the main disadvantages in using the e-resources are that they require purchasing additional equipment (60%); internet connection in the classroom (55%) and also that the equipment should be maintained (52%). One of the disadvantages pointed out by a large number of respondents (44%) is that students get used to this way of presenting the learning content, and afterwards they feel demotivated by the traditional way of teaching. It is highly predictable that everyday presentations of learning content in a multimedia and interactive way will make a traditional presentation without e-resources look poor and probably will not cause the same interest. Disadvantage or not, the current generation is growing in the technological world and they anticipate that the school environment offers technological solutions and resources for education. Teachers realize that as new types of e-resources emerge everyday an ongoing teacher training in this area is needed which is pointed by 1/3 of teachers (33%). Some of them also think that working with e-resources require more preparation and marked it as a disadvantage (25% of respondents). Yet, the same teachers admit that the use of e-resources saves time during the lessons, which could probably compensate the extended preparation time. The integration of any new software or application into educational process requires the provision of detailed instructions to the learners, which takes time and requires additional efforts from teachers. According to their responses though, only 16% consider the need for training students to work with e-resources as a disadvantage. Probably most of the teachers are

aware that "digitally native" students "speak" the language of new technologies in native way and the teachers' efforts to prepare them for the use of e-resources are not that big.

The "other" option for the disadvantages of the e-resources is indicated by 11 respondents (2%). Their free answers revealed the necessity of well-balanced use of e-resources, and a good proportion between the use of traditional and electronic resources in education. Several of those who picked the "other" option actually paraphrase the last of the listed options (students get used to this way of presenting the learning content, and then they feel demotivated by the traditional way of teaching) - they added that "Children are getting used to the use of technology which make the process easier and thus they are tend to stop writing and reading books! "; "There is a risk of over-usage. A balance should be found in order to surprise children with different teaching approaches in every lesson" etc. Two participants pointed out that the teacher's live and motivating speech is lost when using e-resources, but this strongly depends on the methods used, not on e-resources themselves, ie. using e-resources is not a prerequisite for losing teachers live speech. The position of a teacher with 6 to 10 years of professional experience expressed his very interesting position that "teachers are not motivated financially to put more efforts". For many teachers, especially those above middle age who do not feel confident in using new technologies, integration of e-resources in their work requires too much efforts. Having in mind that this is not part of their duties, they are probably realizing it as an extra job, which they are not paid extra for. From this point of view, using e-resources is not much motivating for teachers. Considering different points of view one of the teachers very well summarized this part of the analysis, as he shared:

"All the listed disadvantages can be perceived as a natural necessity and a step in the school transformation in relation to the times we live in. Even the last listed disadvantage would not be a problem, as long as e-resources are not overused; and the emphasis is still on the teacher's "live" teaching."

(Primary teacher with less than 3 years' experience)

#### **3.3. Requirements for effective usefulness of e-resources**

One of the key aspects of using e-resources is related to the requirements that they should fulfil in order to be used effectively in education. This aspect also reveals the extent to which teachers are familiar with the specifics of using e-resources. For the question "What requirements do you think e-resources have to fulfil in order to be used effectively in your lessons?", teachers were provided with a list of requirements as well as the option to give their free responses. The most important requirement according to 65% of the surveyed teachers is that e-resources should provide opportunity for offline usage. This data corresponds to the results of the previous question related to the e-resources disadvantages (need for internet connection). The lack of good internet connection is an issue in many Bulgarian schools which cause teachers to require e-resources that can be used offline. Unfortunately, many free applications with high pedagogical value require internet access, and teachers are unable to take advantage of them due to facility limitations. However, it is interesting that about 1/3 of respondents (30%) pointed that they require e-resources to be online and not require an installation, but 87% of them has also picked the previous option (e-resources to be available for offline usage). Online mode of use is definitely more flexible and offers opportunities to use e-resources without time and location restrictions, but it is controversial to the previous requirement. Probably, the teachers here have focused on the second part of the requirement - not requiring installation, rather than the online mode. Another suggestion can be made that for primary teachers it is important to have both options - to be able to use the e-resources both offline and online, according to the specific situation. The other important requirements mentioned by primary teachers are that e-resources have to be interactive (61%); and allow students to interact with them (62%). These results are a very good indicator for teacher competence – one of the main aims when integrating ICT into classroom is transforming students' role from passive to active as they also interacting actively with different e-resources. (Terzieva et al., 2016), (Vitanov et al., 2015), (Rangelova, 2006). Thus it is really important for the e-resources to be interactive and to allow students to interact with them. Another requirement pointed by more than half of the teachers (55%), is that e-resources have to be accessible for students in their self-preparation for school. Students access issues are associated with e-resources created through specialized educational software (mainly under certain paid licence) which files are in a special format. This requirement is feasible in terms of free online resources and the resources that teachers prepare and share with students. Half of the respondents defined as a requirement for e-resources to be editable. Through this statement primary teachers reveal their willingness to adapt e-resources before using them in real lessons. This fact is encouraging in terms of their competencies - they are aware that the pedagogical context in each classroom is different and it is therefore recommended e-resources to be adapted accordingly. In relation to this requirement 45% of the respondents require e-resources to be developed through software which is accessible for teachers. Interestingly, teachers prefer to be provided with manuals and guidelines (43%) instead of being provided with

Interestingly, teachers prefer to be provided with manuals and guidelines (43%) instead of being provided with training for working with e-resources (an option mentioned by only 21% of respondents). These results are

probably related to the recently updated regulatory requirements for teachers' qualification<sup>49</sup>, which require them to permanently participate in different professional development courses. Therefore, they probably prefer not to participate in additional courses, but to rely on manuals and guidelines.

It is worrying that only 19% of respondents considered **addressing design requirements** as important. Without being well pedagogically and visually designed, there is a serious risk that e-resources do not meet the educational objectives they are prepared for. Probably this fact is underestimated by the respondents. Thus author's observations (Aleksieva, 2013; 2014) that teachers often use e-resources that do not meet a variety of design requirements are confirmed.

The free responses (given by 6 of the respondents) mainly rephrase the listed options. An opinion of a primary teacher with over 21 years of professional experience is worth sharing – she highlighted the importance of active students' participation in education demonstrating her understanding how e-resources can support this process:

"I would be happy if my students could be a part of the process. Ie.to have the opportunity to create activities themselves and demonstrate them to their classmates. Involving them as an active part of the learning process will make them become even more interested and motivated."

#### 4. CONCLUSIONS

The analysis of the data obtained from the survey of teachers' attitudes towards the use of e-resources in education leads to some important conclusions. Primary teachers are well aware of the advantages that e-resource usage provides in education. They define the role of e-resources in education mainly as tools for better illustrating the learning content and motivating students. The disadvantages in using of e-resources pointed by teachers are mainly related to the facilities in schools - the need to purchase and maintain the equipment, the need of stable internet connection. These factors could affect negatively the use of e-resources, but the free responses of the teachers revealed that one of the most important factors for effective use of e-resources is finding a good balance between the use of traditional and e-resources in education.

According to the primary teachers the requirements that e-resources have to fulfil to be effectively used in education are mainly related to their accessibility (being accessible offline, being accessible for students, being editable). The open e-resources (OER) can meet these requirements, and their advantages are also underlined by the European Commission in its recommendations and directives (2014).

Generally, the results of this study are encouraging in terms of teachers' professional development since they reveal their positive attitudes and good understanding of specifics in e-resource usage. When designing educational e-resources, designers could take into consideration the requirements that teachers highlighted.

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