ICT in the Romanian Compulsory Educational System.
Expectations vs Reality

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Abstract

The Romanian National Curriculum for compulsory education focuses on the eight domains of key-competences concerning lifelong learning, promoted by the European Framework. In order to develop the digital competence, the new Romanian Education Act (2011) established that, starting with the 2012-2013 school-year, the Information and Communication Technology (ICT) subject will become for the very first time a part of the Romanian National Curriculum, as an elective subject for primary education (for the following school year, this decision involves only the preparatory grade and it will gradually extend to subsequent grade levels, acquiring the status of compulsory subject for secondary education in the future). This paper includes a review of current legislative documents on education, existing studies and reports, curricular documents, and by means of the five interviews conducted (4 teachers who teach either in urban or rural schools and a school inspector), we attempt to anticipate the obstacles related to the introduction of ICT in the Romanian National Curriculum, as well as to identify possible solutions that may narrow the gap between expectations and reality.

Keywords: digital competence, ICT, Romanian National Curriculum

1. Digital Competence in Education

According to Recommendation 2006/962/EC of the European Parliament and of the Council of 18 December 2006, competences for lifelong learning represent “a combination of knowledge, skills and attitudes appropriate to the context”, necessary for personal fulfillment and development, social inclusion, active citizenship and employment. They are essential in a knowledge society and should be integrated in compulsory education and training and, moreover, they should be further enhanced throughout any individual’s life. The eight key-competences (communication in the mother tongue; communication in foreign languages; mathematical competence and basic competences in science and technology; digital competence; learning to learn; social and civic competences; sense of initiative and entrepreneurship; cultural awareness and expression) are defined and described by the European Reference Framework and they share common features (critical thinking, creativity, initiative, problem-solving, risk assessment, decision-taking, and constructive management of feelings), thus underlining the complexity and unity of the construct.

The digital competence involves the confident and critical use of information society technology (IST), and thus the display of basic skills in information and communication technology (ICT). Consequently, as compared to the other seven key-competences, one could suggest that the digital competence is endowed with “more” transversality in the context of the contemporary world, when it is almost inconceivable to perform an activity without using technology. Apart from the ability to use ICT tools, knowledge of the nature, role and
opportunities of IST in everyday contexts is important. Becoming fully aware of the challenges that automatically come along with this competence is another aspect that has been emphasized in official EU documents (EC, 2008). Therefore, individuals need to acquire the ability to search, collect and process information and use it in a critical and systematic way (EC, 2007).

2. Introducing ICT in Education – Brief Outline

Ever since the end of the 20th century (the 1980s), there has been constant concern with introducing computers in schools, their role gradually increasing from learning about computers to learning with computers (Pelgrum and Schipper, 1993). ICT being first considered as a content element, and then as a didactic tool, enhancing teaching quality and improving the teaching-learning process (Istrate, 2002). Moreover, the issue of teacher training has also been tackled and dealt with during this period, being considered a necessary stage in the process undertaken by ICT to become a well-established subject in the curriculum for compulsory education. Implementing ICT in education has changed the view on educational practices by innovating them and by transforming them forever, as it circumscribes that category of changes considered durable and efficient, assimilated and adopted by the beneficiary “because they satisfy his specific needs” (Huberman, 1978). Education could not stand apart from the transformations stemming from the introduction of ICT for various reasons that are worth mentioning: the entire world cultural content is being converted into digital form, making it accessible to everybody, anytime and anywhere, thus profoundly changing the problems of education, which is forced to find the means that would enable learners to have unlimited access to culture; multiple means of representing information, of simulating interactions, of expressing ideas are developed, means that education cannot ignore or minimize, various ordinary abilities are exteriorized into digital tools, the digital technologies enhancing personal capabilities, situation which, formerly, was exclusively the product of education. Undoubtedly, introducing computers and the internet in schools has meant the development of a new educational paradigm (Istrate, 2002).

In Romania, even before its EU accession, attention was paid to introducing ICT in education. In 2001, a governmental programme abbreviated SEI (Sistem Educațional Informatizat – Educational IT-based System) was launched at national level and its purpose was “to computerise the Romanian educational system by endowing schools with the necessary equipment, by creating a wide range of custom software to facilitate the interaction between the learners and the subject syllabi, by psycho-pedagogically retraining teaching staff with a view embedded in the learner-centred approach and by laying the foundation of a computerised network as support for modern management” (Potolea and Noveanu, 2008) and to offer a complementary solution to traditional teaching. The conclusions of the Evaluation Report on Implementing SEI, published in 2008, show the progress that was made as compared to the situation described in the 2004 intermediary report. Thus, the number of teachers that use ICT was significantly greater than before, the number of lessons in which ICT was used increased and, to a similar extent, the teachers’ and students’ willingness to take part in more lessons that use ICT; the number of students per computer in a school decreased, especially at high school level. Another aspect pinpointed in the report was the ever increasing number of students that independently use the computer at home or in other locations than school, for communication purposes and for acquiring knowledge (Potolea and Noveanu, 2008). What is even more important, the report presented the gap between the rural and the urban areas, the former being obviously in a worse situation.

3. ICT in the Romanian National Curriculum for Compulsory Education

The Romanian National Curriculum for compulsory education covers two divisions: the core-curriculum and the school-based curriculum. The first one corresponds to the minimum number of hours a week for each compulsory subject included in the Curriculum-framework and the second
covers the difference in terms of time allocation between the core curriculum and the minimum/maximum number of hours per week, stated in the Curriculum-framework. The subject curricula contain the attainment targets, the reference objectives, the learning contents and the curricular standards of achievement (grades 1-4) and the general competences, specific competences and the correlated relevant syllabi, values and attitudes (grades 5-8) (M.E.N., C.N.C., 1998). Starting with the 2012-2013 school year, competence-based curricula will be used for the preparatory grade, and similar curricula for grades 1-4 will be gradually introduced, so that, in a few years’ time, the entire National Curriculum will focus on building and developing general and specific competences, subordinated to the key-competences put forth by the European Reference Framework for Lifelong Learning and by the 2011 Romanian Education Act.

Consequently, in 2012, by means of the new National Curriculum, a new Curriculum-framework and new Subject Curricula for the preparatory grade have been launched. The Curriculum-framework has been designed in such a way as “to allow the future 2nd grade graduate to achieve the elementary key-competences level specified in Art. 68 of the 2011 Romanian Education Act” (Appendix 6 in O.M.E.C.T.S. no. 3654/2012). The Subject Curricula are focused on these specifications that target the development of competences (therefore attuning them to those for lower and upper secondary education) and the equipment of the learner with those instruments that will help him grasp the distinctiveness of each domain in order to achieve deep learning. Therefore, priorities change as information acquisition is ranked second and the learner’s ideal portrait is drawn based on developing these competences for each and every subject in the general curriculum. As absolute novelty, in the new curriculum, the Information and Communication Technologies subject (Playing with the Computer) is distinctively comprised by the Curriculum-framework, according to the provisions in the 2011 Romanian Education Act: “ICT is an elective subject for students in grades 1-4 and a compulsory subject for lower and upper-secondary education”. For the preparatory grade, the subject is circumscribed to the curricular area Visual Arts and Technologies and it aims at building and developing the digital competence, as, up to now, this competence has been, to a certain extent, overlooked by the Romanian National Curriculum, or, at least, unsystematically pursued by means of a specific subject. So far, the student’s digital competence has been built tangentially, by means of elective subjects, introduced in the school-based curriculum, carrying on various names, which have been active only in those schools that had the necessary equipment (in Romania, computer laboratories are generally more common in urban than rural areas, and more often than not they are short of computers). It is true that the subject still has an elective statute, being allocated 0-1 hour/week, but, as it is now included in the list of the subjects from the Curriculum-framework, its chances of being introduced in the preparatory grade timetable, and then in those for grades 1-4, increase to a great extent. The ICT subject curriculum has been designed starting from arguments that have taken into account not only the ICT rapid spread, which affects one’s daily life, but also the way in which learning is understood and the fact that, from an early age, children have been exposed to digital device usage. Moreover, the transferability quality of the digital competence has also been considered, as well as the potential risks arising from inadequate use of technologies. The subject curriculum aims at building and developing the digital competence in terms of knowledge, skills and attitudes, described by means of general competences, that are further laid out into specific competences, for the development of which one suggests a learning syllabus that covers basic computer functions, and/or other digital devices, simple digital applications and software, simple tools necessary to explore and select Internet information, as well as ICT security regulations.

4. Obstacles to the Implementation of ICT in Education
The advantages brought about by the use of computers in education are difficult to question, as the strengths clearly outnumber the weaknesses. Nevertheless one needs to refer to the obstacles that
ICT has had to overcome for a successful future to be forseen. Pelgrum (2001) emphasized the obstacles that seriously impede the realization of ICT-related goals of schools, as perceived by educational practitioners at the lower-secondary level, in 26 countries. The results highlight a long list of obstacles. The top 10 is consisted of a mixture of material and non-material obstacles: the insufficient number of computers, insufficient peripherals, not enough copies of software and insufficient number of computers that can simultaneously access the Internet, the teachers’ insufficient ICT knowledge and skills, the difficulty to integrate ICT in instruction, scheduling enough computer time for students, insufficient teacher time, and the lack of supervisory and technical staff (Pelgrum, 2001).

In Romania, the conclusions of the Evaluation Report on Implementing SEI (2008) go along the same line as Pelgrum (2001). Thus, after describing the existing situation in point of equipment, access to new technologies, ICT usage and its impact, the report reaches the following conclusions, more or less similar with the obstacles identified by Pelgrum (2001): equipping schools with computers (SEI laboratories) – the better situation of the urban schools; the Internet connection problem; the lack of qualified staff to administer computers and networks; access to new technologies - the two categories of beneficiaries have different views – the teachers consider that the main obstacle is their lack of computer skills and knowledge; 95% of the students show high levels of interest in participating in lessons that use ICT; educational software usage level in urban areas far exceeds that from rural areas, as 85% of urban teachers have a computer (vs 69.4% of rural teachers); ICT usage - the teachers find it difficult to integrate ICT because of the insufficient number of computers and laboratories, insufficient teacher time to prepare lessons, insufficient educational software, lack of specific training; students have to overcome obstacles they rank as follows: insufficient student-computer interaction time, the large number of students per computer, the difficulty of working tasks, as well as software quality; ICT impact - teachers and school principals generally consider that ICT has a beneficial impact, facilitating the activity of planning and carrying out the educational process, as well as that of evaluating the learning outcomes, developing cooperation learning and students’ interest in what is being studied, improving school performance by making easier for students to understand the subject contents, offering differentiated instruction (Potolea and Noveanu, 2008).

To sum up, although using ICT in education is almost unanimously considered valuable, there are many different obstacles that can be sometimes overcome easily or with difficulty. To identify the causes that lead to them, and more importantly the possible solutions to these problems, we have analysed the situation in Prahova county, in order to have a better picture of the ICT usage in compulsory education in Romania.

5. ICT in Prahova County
Prahova is not only the most populated county in Romania, except for the capital, Bucharest, but also one of the most urbanized, comprising two municipal towns and twelve towns, and one of the most economically powerful counties, above the national average. In Prahova county there are 279 schools, 134 in the urban area and 145 in the rural area, attended by approximately 120,000 students. For the 2012-2013 school year, the Prahova County School Inspectorate reported 258 preparatory classes in 159 schools in urban and rural areas. Taking into consideration the socioeconomic circumstances in Prahova county, less unfavourable as compared to other areas in our country, our research is based on the assumption that, in this area, the problems caused by implementing ICT should be less critical. Consequently, we assume that the obstacles may be more transparent, allowing us to identify solutions, as well as more approachable, so that these envisaged solutions might be applied.

To validate/invalidate our assumptions we conducted 5 semi-structured interviews with teaching staff from Prahova county: one with a school inspector for primary education and 4 with
primary teachers who will teach the preparatory grade starting with the 2012-2013 school year. The interviews focused on: the extent to which the ICT (Playing with the Computer) subject will be included in the preparatory grade timetable; the introduction of this new elective subject in the Curriculum-Framework; the favouring/blocking factors regarding the ICT introduction/rejection in the timetable; the clarity of the explanations and suggestions in the ICT subject curriculum; the perspective that, in spite of its elective status, the ICT will become a common subject in primary education, taking into account the compulsoriness of the ICT subject in secondary education, in the near future.

From the interview with the school inspector, we were able to make out the strengths and weaknesses of introducing ICT with the preparatory grade, starting with the 2012-2013 school year. Thus, he concluded that preparatory classes would not include the new subject in their timetables, although, in his opinion, the utility of integrating ICT starting with primary education cannot be contested and the subject curriculum was designed so as to capitalize on the content elements of the other subjects, substantially contributing to achieving a new curriculum approach: an integrated, non-disciplinary one. As for the causes leading to this situation, the school inspector distinguished three possible reasons: curriculum design, material resources and human resources.

The first reason refers to the way in which the curriculum was designed: according to legislation in force, in primary education timetables there must be at least one elective subject, and curricular documents suggest that this should circumscribe to the Language and Communication Curricular Area – learning a foreign language. There are few cases when two elective subjects are included in primary education timetables, and therefore, probably, more often than not, the elective subject will be foreign language learning (another key-competence), continuing the current trend to the detriment of ICT. Insufficient material resources represent the second reason emphasized by the school inspector: not all schools in Prahova county have a computer laboratory, and, even if such a laboratory exists, the number of computers is smaller than the number of students in a class (according to legislation in force, the maximum number of students in a class is 25 in primary education, but this regulation is often broken, especially in the urban area). Moreover, the subject curriculum suggests that the ICT class should unfold in a familiar environment for the preparatory grade students, that is in their classroom, which, consequently, should be equipped with at least one Internet connected computer, a screen and an overhead projector, and, ideally, with 3 or 4 extra computers, permanently at students’ disposal, so that small group work and smooth transition from one activity to the next be permitted. With few (isolated and only in the urban area) exceptions, Prahova county schools do not have the necessary equipment. The school inspector also mentions that the funds allocated so far (only two more months before the new school year starts) are insufficient to cover the necessary school equipment. As for human resources, the ICT subject curriculum recommends that the subject would be taught by the class teacher who is considered the most appropriate person to plan this activity. But not all primary education teachers have ICT competence – although, if reading their files, they have attended various in-service training courses – and, in the school inspector’s opinion, teachers view in-service training as obligation, not as opportunity, and, consequently, course participation is often formal, without always resulting in competence acquisition. Thus, on the one side, younger teachers (<40), generally from the rural area (where the teachers’ age average is considerably lower as compared to the urban area) have ICT skills, but they lack the necessary material resources; on the other side, older teachers (>50) do not have ICT skills and, sometimes, they are resistant to change.

The 4 teachers that were interviewed reinforced the school inspector’s opinion. Teacher 1 (42, female, Master Studies in Education, ICT skills acquired during in-service training and autodidactically, urban school with 900 students and a computer laboratory) will not introduce ICT in her preparatory class timetable, and neither will the other two preparatory class teachers in her school, mainly because of lack of material resources. Her classroom is not properly equipped, and
even if this were possible, there would not be enough room for the necessary equipment. As for the computer laboratory in her school, the number of computers (18) is smaller than the number of students in a class. In her view, ICT could be the queen of subjects, the students’ ICT competence being a valuable asset when teaching-learning the other subjects. However, she considers that it is difficult to overcome obstacles such as the lack of material resources, as well as older colleagues’ reticence to the new teaching-learning approach triggered by the ICT introduction, explaining that, at school management level, identical timetables are generally preferred to avoid discrimination. Therefore, even if there were sufficient material resources, colleagues’ resistance to change could not be eliminated so easily. Teacher 2 (35, female, Master Studies in Education, ICT skills acquired autodidactically and improved during in-service training, urban school in a disadvantaged area, with 400 students and a computer laboratory) salutes the ICT introduction in the preparatory grade Curriculum-framework, especially because more than half of the students in her school do not have access to a computer at home. Nevertheless, ICT will not be included in the timetable of the two preparatory classes in her school, because another elective subject was preferred. She considers that one could benefit from the recommendation that the class teacher should teach the subject, provided the classrooms were equipped adequately or a bigger number of computers existed in the laboratory (now there are 15) and all the teachers had computer skills. Teacher 3 (32, female, Bachelor Studies in Psychology, ICT skills acquired autodidactically, rural school, with less than 200 students and a computer laboratory – 10 computers) is more optimistic and considers, that, although ICT will not be a part of the next year’s preparatory class timetable, this new subject will be introduced in the future, as circumstances in her school are favourable: the teaching staff is mainly young, with ICT skills and more open to new approaches, and classrooms could be adequately equipped by local authorities, provided the school initiative were supported by the school inspectorate. Teacher 4, (30, female, Bachelor Studies in Education, ICT skills acquired during initial and in-service training, rural school, with less than 100 students and no computer laboratory – there is one such laboratory with 10 computers in the “main” school) considers that ICT is very useful for primary school students. This school year’s preparatory class will not have ICT in its timetable, because classroom equipment according to recommendations in the subject curriculum is non-existent, and unfolding the ICT class in the computer laboratory means taking students to the “main” school (located at 5 km away).

6. Conclusions
Starting from considerations emphasized in previous research (Pelgrum, 2001; Noveanu and Potolea, 2008), we have attempted to identify the obstacles that hinder the implementation of ICT in compulsory education in Romania, the causes that favour or maintain them so as to come up with possible solutions. The small-scale investigation we conducted in Prahova county strengthened the general opinion that, even if ICT is now a part of the Curriculum-framework, it will not be present in the preparatory grade timetable in the 2012-2013 school year, mainly because of the obstacles that have already been pinpointed in our paper. As for possible solutions, the school inspector and 2 of the teachers interviewed suggest that changing mentality is mandatory under present circumstances. But, unfortunately, it is very difficult, and sometimes impossible, to change people’s mentality, just as Huberman (1978) pointed out: when it is about a major change in education, the critical factor is not the nature of that change, but “the perception that the individual, who is confronted with adopting innovation, builds about the changes that he, himself, will be forced to make”, and “stress must be first placed on changing attitude, and only after a while on changing methods and practices”. Therefore, we suggest that in-service training should start from carefully and minutely analyzing teachers’ (both present and future) real needs, and that the degree of formality characterizing training courses should diminish, because teachers need to permanently acquire skills and competences in order to cope with a world that does not
stand still. Nevertheless, deeper investigation of this topic is necessary, because improving teachers’ skills and competences could help change their mentality, and, moreover, if material obstacles could be overcome by means of central or local funding, the gap between expectations and reality would narrow down significantly as far as the ICT integration in the Romanian National Curriculum is concerned.

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