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A Tablet in School and Family Context

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Abstract

In information and communication society, school cannot turn a blind eye to new technologies. Therefore, the main objective of this research is to examine the potential use of tablets by primary school students in the school and the family context. The research was developed using qualitative methodology. A total of 247 respondents participated in the study, involving students, their parents and teachers. The results and conclusions show that there is no systematic work with tablets. Among practices of using tablets in school, it is worth mentioning those related to the investigation/information collection, those belonging to exploratory type and those related to audio-visual creation, while at home tablet usage assumes the recreational character. As a starting point, the positive attitude of teachers and parents towards using tablets has an impact on a better use of tablets, although they cannot be understood as a means to improve students' academic learning. However, tablets increase students' motivation.

Key words: family context; ICT; mobile devices; primary education; tablet.

Introduction

Digital technologies have emerged in different professional fields, including the educational and personal areas (Batdi, 2017). In general, Information and Communication Technologies (ICT) can facilitate and improve classroom dynamics, facilitate ubiquitous learning and interaction among groups of people, at any time, from different places, and using multiple devices. According to Zimmerman and Howard (2013), mobile devices increasingly provide students with meaningful and specific learning from their immediate context and worldwide. Thus, formation of learning is open and no longer subject to the physical classroom context or school schedule. However, technology has not yet become fully integrated in the field of education.

Mobile technology allows educators to customize students' learning by designing original and attractive activities to motivate them (Hess & Gunter, 2013). However, this requires a methodological innovation that goes beyond the classroom walls. Sung, Chang, and Liu (2016) state that teaching and learning with mobile devices, *per se*, is innovative. The digital tablet is one of the technological devices with the most possibilities for innovation. In fact, its informal use is widespread both among adults and youth.

The use of tablets in the educational context is highly acknowledged. Chen and Sager (2011) and Chang, Liu, and Tsai (2016) claim that this tool improves students' digital skills and helps to develop their creativity, while increasing their learning and intrinsic motivation. Despite the fact that this device was not originally designed for educational purposes, it is being incorporated into the classrooms at different educational levels as an innovation (Butcher, 2016). Although tablets do not have such powerful software as laptops, in terms of technology they offer very interesting possibilities and are easy to manipulate. Their functionality is also constantly improving, especially due to the growing number of recently available compatible applications (Apps) (Falloon, 2015). It is therefore important to analyze the quality and educational adequacy of tablets in school and family contexts (Crescenzi & Grané, 2016).

The tablet could be an excellent pedagogical support for the teaching-learning process, and could become a valuable stimulus to promote innovation (Botha & Herselman, 2015) and improve education. In fact, some schools have integrated tablets into the classroom practice to promote more active learning and to encourage students to develop academic skills (Flewitt, Messer, & Kucirkova, 2015; Van-Hove, Vanderhoven, & Cornillie, 2017). Among the educational goals of the 21st century society, the continuous promotion of digital competence stands out. Students must have access to different media or digital tools to search for information, manage content, develop resources in different formats (audio, text, video, or multimedia) or use multimedia games. They can thereby improve their digital competence, while reinforcing their new knowledge at the same time.

According to Kim, Park, Yoo, and Kim (2016), tablet-supported teaching leads to effective and efficient training and enriches the classroom climate, while drawing on the formulation of prior ideas, information management, and peer teamwork. The use of mobile devices facilitates handling a large and varied amount of data through the Apps (Haßler, Major, & Hennessy, 2015). Technological equipment, the tablet in particular, is therefore expected to increase the opportunities for students' learning (Shank & Cotten, 2014).

Hutchison, Beschorner, and Schmidt-Crawford (2012) state that the learning potential of tablet use is directly related to the teachers' ability to take advantage of its possibilities. The role of the parents and their relationship with their children are also important in order to integrate tablets systemically into the academic curriculum. Although there are increasingly more digital natives in primary school, there are

continued gaps in digital competence among the population. Due to their digital experience, primary school students have the computer skills to manage these resources and are more inclined to use technology. Nevertheless, in schools that have difficulties to acquire these devices, the real possibilities of tablets are still unclear. Hence, the main purpose of this research is to analyze and determine primary school students' use of tablets. We propose the following specific goals:

- to determine these students' use of tablets in the school and family contexts;
- to detect the students' activities carried out with tablets;
- to discover the problems derived from the use of tablets.

Methodology

This research uses a qualitative methodology with a narrative approach through a multiple case study. This type of research is useful for contextualized studies conducted in the environment in which they occur. In other words, researchers working in a familiar field can understand that field because they can observe the participants and ask them about their daily lives. It is also more likely for the people involved to talk to the researchers about the circumstances that influence their lives (Atkinson, Coffey, & Delamont, 2003).

Sample

This multiple case study was carried out in the northwest of Spain (where two native languages are spoken), so it comprised three multilingual schools that taught ordinary primary school classes (6-12 years of age). The school curriculum of this student body promotes multilingual training and the use of ICT. The teachers are encouraged to work on the key competences (linguistic communication; 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 expressions) to acquire knowledge of languages. Such knowledge allows the students to speak, read, and write fluently in Spanish, in the regional language, and in a foreign language (in this case, English).

In Spain, primary education is made up of 6 levels. As this is a qualitative research, we decided to select the participants (students, teachers, and families) according to the proximity of the contexts and our possibilities to access them. The study was carried out in three basic education schools at the 1st, 3rd, 5th, and 6th levels. The group of selected participants was fairly heterogeneous. The school selection criterion was the inclusion of tablets in classes. The tablet was incorporated in the schools during the school year 2014/2015. Pseudonyms have been used to protect the data of the three analyzed schools. In The Vivos school, the tablet was included in the two groups at the last level (6th A and 6th B), whereas in The Aca and The Flo schools, it was used at all levels of primary education (1st, 2nd, 3rd, 4th, 5th, and 6th grade). All the selected schools provide tablets for their students, and the children also have tablets at home.

A total of 247 individuals participated in the study, divided into 3 groups: students (N = 120), parents (N = 107), and teachers (N = 20). The students (64 girls and 56 boys, aged between 6 and 12 years) were distributed in 24 discussion groups (DG) – 3 groups per class, and 5 participants in each group. These students participated in the dialogues and debates with this technique. We decided to develop the DG within each class (in order not to mix students from different classes), trying to include both genders in the groups (Table 1).

Table 1
Composition and distribution of the discussion groups

School centre (pseudonym)	Year	Discussion group	No. of boys (n)	No. of girls (n)
The Aca	1 st	Group 1	2	3
		Group 2	2	3
		Group 3	1	4
	3 rd	Group 4	2	3
		Group 5	2	3
		Group 6	2	3
	5 th	Group 7	3	2
		Group 8	2	3
		Group 9	2	3
The Flo	1 st	Group 10	4	1
		Group 11	4	1
		Group 12	4	1
	3 rd	Group 13	2	3
		Group 14	2	3
		Group 15	2	3
	5 th	Group 16	2	3
		Group 17	2	3
		Group 18	2	3
The Vivos	6 th A	Group 19	2	3
		Group 20	2	3
		Group 21	3	2
	6 th B	Group 22	3	2
		Group 23	2	3
		Group 24	2	3
Total number of participants: 120				

Through open questionnaires, we collected narratives from 107 parents - fathers (N = 29) and mothers (N = 78) – of the students who used tablets both in the classroom and at home. The average age of this group is 41 years (fathers) and 43 years (mothers), with a mean global age of 42 years.

The sample also included 20 teachers – 3 male and 17 female. Two of the male teachers who participated in the research had less than 5 years of work experience, whereas among the female teachers (N=17), 7 of them had less than 5 years and 8 had more than 10 years of work experience.

Instruments and Procedure

Since there had been no published instruments that could be adapted for the purpose of the research, we designed ad hoc instruments under the guidance of four experts, with considerable knowledge of the topic, the typology, and the research techniques employed. This provided content validity of the instruments.

The final version of the instrument used for the DGs collected participants' data and profiles and included guidelines for structured questions. These questions were designed for the students, their parents and teachers (in the form of open questionnaires), and focused on the following aspects:

- Dimension 1: First contact with tablets
- Dimension 2: Curricular integration of tablets in the classroom
- Dimension 3: The family's reaction to tablets.

The open questionnaire was distributed to parents to collect their narratives, and it included two sections concerning their contextualization, profiles, and the data associated with the above mentioned dimensions. Before we began collecting the children's data, the families, teachers, and school management teams had given their informed consent. The DGs with the students, which lasted about half an hour for each group, were carried out in the break room. The management teams directly distributed the open questionnaires to collect the parents' narratives. The parents subsequently deposited their narratives in a corner of the classroom. The open questionnaire distributed to the teachers also collected contextual information, the profile data, and included questions about the above mentioned dimensions. The teachers' narratives were collected online via the Gmail Drive. Previously, the teachers included in the sample received a link by email that enabled them to complete and submit the questionnaire anonymously.

Data Analysis

After transcribing, organizing, and formatting the information, we applied content analysis, under the guidance of the four experts who participated in the design of the instruments, thus optimizing the categorization of the data. The main criteria to delimit the categorization, on the advice of the experts, were: raw data and their correspondence with the goals of the study (Krueger & Casey, 2014). The subcategories were classified ad hoc, following the experts' criteria. The category of school and family activities performed with tablets was based on the type of the dominant cognitive process and/or task characteristics, whereas to categorize the contributions and controversies related to tablets, we used the positive and negative aspects of tablet use (see Table 2).

Table 2
 Categorization and criteria established for content analysis

Categorization: 1 st , 2 nd and 3 rd level		Criteria: Categories	
		2 nd and 3 rd level	1 st level
1 st level	Use of tablets in school and in family		
2 nd level	<ul style="list-style-type: none"> ➤ School practice <ul style="list-style-type: none"> • Data Search/ Collection • Exploration • Investigation • Drawing 		
3 rd level	<ul style="list-style-type: none"> • Audiovisual creation • Identification • Matching • Gap-fill • Reading • Composition 		
2 nd level	<ul style="list-style-type: none"> ➤ Informal practices <ul style="list-style-type: none"> • Data search/ Collection • Didactic games 	Ad hoc classification based on the type of predominant cognitive process and/or task characteristics	Associated with the goals of the study
3 rd level	<ul style="list-style-type: none"> • Audiovisual • Reading • Downloads 		
1 st level	Contributions and controversies of use		
2 nd level	<ul style="list-style-type: none"> ➤ Positive <ul style="list-style-type: none"> • Immediacy • Light 		
3 rd level	<ul style="list-style-type: none"> • Versatile • Motivating • Improves attention 		
2 nd level	<ul style="list-style-type: none"> ➤ Controversial <ul style="list-style-type: none"> • Economic cost 		
3 rd level	<ul style="list-style-type: none"> • Technical problems • Health problems • Required training 		

To perform content analysis, the narratives were downloaded with the Analysis of Qualitative Data (AQUAD) software, version 7. After specifying the major categories, the information was encoded taking into account the provenance of each of the groups. In a subsequent phase, we reviewed the analysis in view of the complete list of the categorical system, considering the 1st level of categorization and the respective subcategories (2nd and 3rd level). This allowed us to generate the results with the AQUAD program and download them to Excel, which, in turn, enabled us to obtain the respective categories and their predominance. However, the purpose of the numeric component of the results, which is represented by their frequency, is complementary and revealing, but not meant to emphasize merely the quantitative aspect. The frequency was calculated taking into account the identification of the diverse subcategories extracted from the raw data, considering the frequency (f) of

the ideas presented by each participant. This number of presentations is expressed in relation to the total number of participants in the respective collective (f/n).

To guarantee the credibility of the results, we offer some associated evidence (reflected in the extracts of the narratives provided in the Results section). The stability of the results was ensured through the saturation of data, and the validation of the data through the triangulation of the perspectives (considering the 3 groups involved and the use of different techniques: DG and open questionnaires). As indicated by Creswell and Miller (2000), the robustness of the results can be ensured through the soundness of the information collected with different instruments and from diverse groups, and from the comparison and/or the complementarity of the results.

Results

The results of the study are based on the graphical components. In order to optimize their organization, we grouped the main categories around two key elements (which lead to the 1st, 2nd, and 3rd level subcategories) related to: the use of tablets in school and in the family, and contributions and controversy related to the use of tablets in the classroom and at home.

The Use of Tablets in School and in the Family

The use of tablets at school is restricted to the student's classroom, with a flexible schedule and different uses depending on the teacher's teaching style, the subject for which the tablet is used, and the content that the teacher has decided to develop. Depending on the subject, tablet use can vary between 2 and 10 hours per week, always under the teachers' supervision. Primary school students use tablets in almost all subjects of the school curriculum, although this has not been made standard.

The respective groups involved in the research (parents, students, and teachers) indicated that the main subjects in which the students use tablets in primary education are: Social Sciences and Natural Sciences. A small group of parents positively valued the use of tablets in the autonomous community's own language and in Arts. The students' and teachers' perceptions showed their interest in Arts, as was the case with English Language as a school subject. However, the type of use and time dedicated to using tablets in different areas varied a lot (Table 3).

The participants in the study positively valued the practice sessions carried out with the tablet at school. The students especially enjoyed the practices of data search/ collection and activities of exploration and investigation. These practice sessions were conducted mainly in the areas of Social Sciences, Natural Sciences, and in the autonomous community's own language. The works aimed at stimulating the children's curiosity and creativity were considered interesting, especially those associated with editing videos and recording films. These tasks were mainly performed in the area of Social Sciences, and drawing was practiced almost exclusively in Arts. These more

creative classes were more successful in the lower levels (1st and 3rd grade of primary education). To illustrate these results, we present some excerpts.

Table 3
Use of tablets in the classroom

Main category: the use of tablets in schools				
Subcategories		Parents (f/n)*	Students (f/n)*	Teachers (f/n)*
2 nd level	3 rd level			
Types of curricular practices	Data search/ Collection	92/107	120/120	20/20
	Exploration	78/107	110/120	16/20
	Investigation	80/107	115/120	18/20
	Drawing	80/107	85/120	14/20
	Audiovisual creation	88/107	95/120	15/20
	Identification	59/107	75/120	13/20
	Matching	76/107	70/120	11/20
	Gap-fill	79/107	80/120	14/20
	Reading	16/107	80/120	11/20
	Composition	16/107	70/120	9/20
	Numerical	54/107	60/120	11/20

(f/n)*= obtained frequency count/ total number of participants per collective

Narrative No. 99: Mother (aged 41) of a 6th grade student; The Vivos School (lines of analysis: 58-59).

“My son uses the tablet at school in the areas of Social Sciences and the regional language. He uses it in a team where he and his peers must search for information about a topic and then make audio-visual presentations.”

Narrative No. 12: Discussion group of 5th grade of primary school; The Flo School (lines of analysis: 57-63).

P1 (boy, 10 years old): *“We make films in Social Sciences classes and we search for a lot of information using the tablet.”*

P4 (girl, 11 years old): *“We also disguise ourselves, get ideas about characters from the Middle Ages, and we made a film with the Social Sciences teacher to learn about history.”*

P5 (girl, 11 years old): *“In a project in this subject, we are making a videogame with the rivers of Spain, and the teacher told us that we were going to record it with the tablet, and we will also make a tutorial video.”*

P2 (boy, 10 years old): *“In Natural Sciences, we watch videos that the teacher plays on the tablet so we can understand her explanations better.”*

Narrative No. 19: Teacher (female, aged 53) in 3rd grade; The Aca School (lines of analysis: 52-55).

“We use the tablets mainly in these subjects: Natural Sciences, Social Sciences, English language, and Arts. The main activities that we carry out are based on the search for information, elaboration of teamwork, and recording and editing videos.”

In the family context, the students also perform activities with tablets in the company of their parents (Table 4). These practices are related to those carried out in the classroom and they help deepen the children's learning. The children usually approach them informally and they enjoy the educational-playful nature of the activities (especially those concerning didactic games, watching video films, and listening to music). Like the activities performed in the classroom, many of the tablet activities have to do with data search/collection, usually to review concepts and help the children with their homework. These activities are carried out in a relaxed and recreational atmosphere. The children also investigate other academic and personal aspects more flexibly.

Table 4
Use of tablets at home

Main category: use of tablets in the family				
2 nd level	Subcategories 3 rd level	Parents (f/n)*	Students (f/n)*	Teachers (f/n)*
Types of leisure practices	Data search/ Collection	76/107	70/120	19/20
	Didactic games	66/107	100/120	20/20
	Audiovisual	62/107	85/120	7/20
	Reading	5/107	0/120	0/20
	Downloads	60/107	65/120	0/20

(f/n)*= obtained frequency count/ total number of participants per collective

Downloading, mainly of Apps, is another activity carried out with tablets at home. These Apps are essentially for recreational purposes although some of them are related to academic tasks. However, the teachers have no information about this activity, which shows a lack of communication, coordination, or collaboration between the families and the school. Another problem faced by the families is their lack of orientation/knowledge to identify which educational Apps are suitable for their children to download.

Tablets have mechanisms to create reading habits but the results of the study showed that the possibilities of tablets to develop reading skills are barely exploited in the family setting, despite the pliability of children at this stage. Also, children's interests are less dispersed than in adolescence, they usually have more leisure time, and family monitoring is more direct.

Contributions and Controversies of Using the Tablet

Under the categories (1st level) associated with the contributions and controversies of the use of the tablet, both at school and at home, we have grouped the aspects perceived as valuable and those considered inappropriate. In general, different groups attributed substantial advantages to the use of tablets, although they also mentioned some disadvantages (Figure 1).

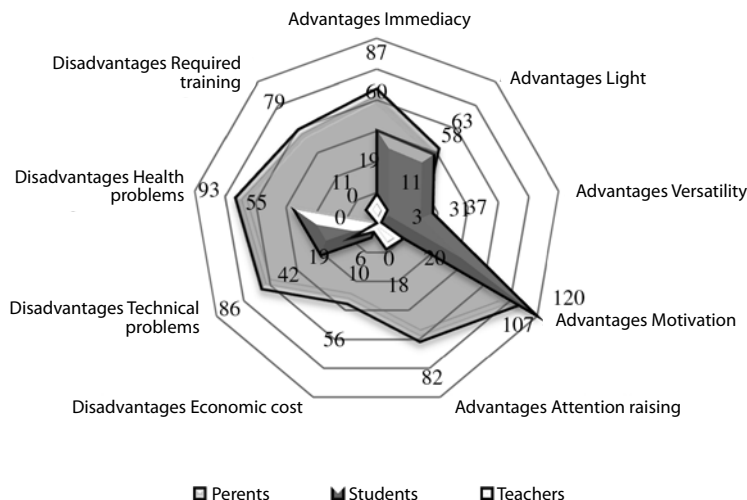


Figure 1. Advantages and disadvantages of the use of tablets

The students’ families generally believed that tablets motivate their children, but they did not identify substantial improvements in academic performance, even though they observed a positive global influence. Although the parents considered tablet use in the classroom as advantageous, they did not directly encourage their children to use them because they have observed in their children a marked tendency to use the tablet indiscriminately, anytime and anywhere. In fact, the teachers also stated that the parents did not encourage the children to use tablets. Some excerpts associated with these results are provided as an illustration.

Narrative No. 14: Mother (aged 41) of a 3rd grade primary school student; The Flo School (lines of analysis: 57-61).

“I always say that I don’t consider the tablet a toy. If it is used well, my daughter can learn a lot and resolve many doubts, but she should not be using it all the time. I approve of the tablet but, sincerely, I do not urge her to use it because I can see that she remembers to use it all by herself.”

Narrative No. 20: Discussion group: 6th grade; The Vivos School (lines of analysis: 25-34).

P1 (boy, 11 years old): *“My father likes us to use tablets sometimes because that way, we learn more things about technology, and are more prepared for the future.”*

P2 (boy, 12 years old): *“My parents also like us to use it, but not always. My mother thinks it’s interesting for us to learn with it.”*

P4 (girl, 11 years old): *“Encourage..., they do not encourage us, because they are afraid that we use tablets too much and that this might affect our eyesight.”*

P5 (girl, 12 years old): *“They are afraid of our getting addicted, that is why they try to limit tablet use somewhat and don’t let us use it as much as we would like.”*

Narrative No. 1: Teacher (female, aged 42) in 5th grade; The Aca School (lines of analysis: 98-104).

“The families’ reactions to the inclusion of tablets in their children’s learning are positive. Some families actively collaborate, providing resource names: Apps..., and also facilitate the children’s attendance at different courses outside school hours.”

The families, students, and teachers all emphasize the children’s playful and motivating experience of the tablet as one of its main attractions. Similarly, the teachers believe that tablets improve students’ attention and, as a result, their academic performance, although two teachers did not acknowledge this positive influence. Other aspects valued by the groups – somewhat cautiously – were: the ease with which information is accessed; the tablet’s low weight (which is considered a big advantage as the children can carry it from one place to another), and its versatility (i.e., the facility to perform different types of tasks anywhere, at any time and, even, in any posture).

Although the influence of including tablets in education is positive, there are also some disadvantages that should be noted. The respective groups agreed that the main problem is of a technical nature, which is highly stressed by the students and their parents. Network connection difficulties or technical problems are the most worrisome. Some consequences associated with the deterioration of health (visual discomfort and difficulties linked to possible excesses that could generate some kind of addiction in the long run) are also of concern to the parents, whereas the teachers emphasize their own insufficient training (in many cases, they are self-taught), and the demands to use the technology. We present some extracts below.

Narrative No. 46: Mother (aged 39) of a 1st grade primary school student; The Flo School (lines of analysis 68-71).

“Well, I think that it’s fine for my son to work with the tablet, but his teachers and family should control him to avoid excessive use in order to prevent health problems.”

Narrative No. 5: Discussion group: 3rd grade of primary school; The Aca School (lines of analysis: 88-91).

P1 (boy, 8 years old): *“For me, the main drawback of the tablet is that you can get hooked on a game, playing all day and end up harming your eyesight.”*

P5 (girl, 9 years old): *“That’s what happened to me. I wear glasses because I used to watch “Cantajuegos” a lot on the tablet and that harmed my eyesight.”*

P3 (boy, 8 years old): *“Besides, sometimes the Wifi fails and we have no Internet connection, so you can hardly work with tablets.”*

P4 (girl, 8 years old): *“Although the battery lasts a long time, if it runs out, that’s another disadvantage.”*

P2 (girl, 9 years old old): *“If you use tablets a lot, you might get a headache.”*

Narrative No. 10: Teacher (female, aged 32) in the 3rd grade; The Flo School (lines of analysis: 107-115).

“Working with tablets is very interesting but I think that, currently, teachers do not have the resources because tablets can be expensive and, sometimes, difficult to use. Most of the applications that really are worthwhile cost money. In addition, prior training is necessary.”

The analysis of the difficulties concerning the acquisition of tablets and working with them at school reveals the existence of a digital gap associated with the teachers' limited technological resources and training. This gap mainly affects the teachers and it is counterbalanced by their positive attitude, and it also decreases as they make efforts to improve. We also identified some obstacles to the effective collaboration between the school and the families; for example, some students who have a tablet at home do not share it in the schools that have problems to obtain resources.

Discussion and Conclusions

In some studies (Çukurbaşı, İşbulan, & Kızılcı, 2016) it has been found that the use of tablets has a great potential for learning in the school context. In fact, schools are increasingly using tablets. This study shows that the incorporation of tablets is slow in some particularly difficult contexts, revealing deficits associated with the acquisition of resources or with teachers' training.

Tablets are not currently used in all the subjects of the curriculum, nor can their use be considered standard. Likewise, very little time is spent working on tablets in the class. Despite the obstacles to the use of tablets, we did not detect a skeptical attitude toward it.

This study found that Social Sciences and Natural Sciences are the main subjects in which students used tablets. Their practice sessions are fundamentally aimed at searching for/collecting information, exploring experiences and content, as well as developing small investigations, audiovisual creations, and drawing. As home entertainment, the students watch videos/movies or play educational games. Of these activities, we highlight the search for information for different academic tasks in which the family is involved. Apps that are susceptible to educational use are a valued resource, particularly in the family context, and they are considered to facilitate curricular content and improve students' motivation and learning. We highlight the use of the Internet to locate multiple webs of interest, with some websites allowing free downloads of educational activities suitable for children at primary education level.

As a starting point, the contribution and assessment by the people involved in this study (teachers, students, and parents) should be positive in order to effectively include the digital tablet in the classroom. This research showed that the parents consider tablets highly motivating components for their children. However, parents do not overtly encourage the use of tablets, on the grounds that the children already use them excessively on their own. Also, the parents do not think that tablets specifically lead to a substantial improvement in their children's academic performance. Similarly,

Nguyen, Barton, and Nguyen (2015) reported that tablets do not necessarily lead to improvements in terms of performance, although their use in the educational context improves the learning experience. Nevertheless, the teachers and students are committed to the inclusion of tablets in the classroom and, together with the parents, they highlight various advantages, but also some disadvantages.

In line with other studies (Jeong & Kim, 2017; Kim & Jang, 2015), teachers claim that carrying out educational activities using tablets is a good way to motivate the class, and it also improves students' attention. Among the positive features of this device, the students and participating families mainly emphasize its light weight and convenience, as well as the opportunities it offers for immediate access to a large amount of information and resources of various kinds.

The three groups under study agree that the biggest drawback of using tablets in the classroom has to do with technical problems. The teachers also underline their lack of training in technology. The existence of technical infrastructure, in itself, is not a key element for the successful use of tablets. However, deficient technological training, accompanied by the lack of a positive attitude and scarce familiarity with digital devices, leads to a deep gap. On the other hand, the students and their parents both point out the health problems that the use of tablets can cause; for example, visual damage or addiction problems.

In the current framework, mobile devices challenge the boundaries between formal and informal education, between teachers and students, or between the home and the school environment because learning thrives on multiple resources and contexts (Clarke & Luckin, 2013). In any event, to enable the productive and relevant use of tablets, they should be used systematically in the school context, and be viewed as a daily working tool. This could be an alternative to the firmly established use of textbooks supported by traditional didactic methods. At the same time, more coordination is needed between the teaching staff and the family to include the use of tablets in primary education, as we have not observed any structural evidence of collaboration between the two groups, nor any effective actions to solve this problem.

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References

- Atkinson, P., Coffey, A., & Delamont, S. (2003). *Key themes in qualitative research: continuities and changes*. Walnut Creek, CA: AltaMira Press.
- Batdi, V. (2017). Smart board and academic achievement in terms of the process of integrating technology into instruction: A study on the McA. *Croatian Journal of Education, 19*(3), 763-801. <https://doi.org/10.15516/cje.v19i3.2542>

- Botha, A., & Herselman, M. (2015). A teacher tablet toolkit to meet the challenges posed by 21st century rural teaching and learning environments. *South African Journal of Education*, 35(4), 1-19. <https://doi.org/10.15700/saje.v35n4a1218>
- Butcher, J. (2016). Can tablet computers enhance learning in further education? *Journal of Further and Higher Education*, 40(2), 207-226. <https://doi.org/10.1080/0309877X.2014.938267>
- Chang, C. J., Liu, C. C., & Tsai, C. C. (2016). Supporting scientific explanations with drawings and narratives on tablet computers: An analysis of explanation patterns. *The Asia-Pacific Education Researcher*, 25(1), 173-184. <https://doi.org/10.1007/s40299-015-0247-0>
- Chen, F., & Sager, J. (2011). Effects of tablet PC use in the classroom on teaching and learning processes. *Learning in Higher Education*, 7(2), 55-67.
- Clarke, L., & Abbott, L. (2013). Hands on the iPad, heads in the cloud: Teaching and learning with iPads in a Belfast primary school. In R. McBride, & M. Searson (Eds.), *Proceedings of society for information technology and teacher education international conference 2013* (pp. 3672-3680). Chesapeake, VA: AACE.
- Crescenzi, L., & Grané, M. (2016). An analysis of the interaction design of the best educational Apps for children aged zero to eight. *Comunicar*, 46, 77-85. <https://doi.org/10.3916/C46-2016-08>
- Creswell, J. W., & Miller, D. L. (2000). Determining validity in qualitative inquiry. *Theory into Practice*, 39(3), 124-130. https://doi.org/10.1207/s15430421tip3903_2
- Çukurbaşı, B., İşbulan, O., & Mübin Kıyıcı, (2016). Acceptance of educational use of tablet computers: A critical view of the FATİH Project. *Education and Science*, 41(188), 67-82. <https://doi.org/10.15390/EB.2016.6621>
- Falloon, G. (2015). What's the difference? Learning collaboratively using iPads in conventional classrooms. *Computers & Education*, 84, 62-77. <https://doi.org/10.1016/j.compedu.2015.01.010>
- Flewitt, R., Messer, D., & Kucirkova, N. (2015). New directions for early literacy in a digital age: The iPad. *Journal of Early Childhood Literacy*, 15(3), 289-310. <https://doi.org/10.1177/1468798414533560>
- Haßler, B., Major, L., & Hennessy, S. (2015). Tablet use in schools: A critical review of the evidence for learning outcomes. *Journal of Computer Assisted Learning*, 32(2), 139-156. <https://doi.org/10.1111/jcal.12123>
- Hess, T. S., & Gunter, G. A. (2013). Serious game-based and non-game-based online courses: learning experiences and outcomes. *British Journal of Educational Technology*, 44(3), 372-385. <https://doi.org/10.1111/bjet.12024>
- Hutchison, A., Beschorner, B., & Schmidt-Crawford, D. (2012). Exploring the use of the iPad for literacy learning. *The Reading Teacher*, 66, 15-23. <https://doi.org/10.1002/TRTR.01090>
- Jeong, H., & Kim, H. (2017). Investigating teachers' pedagogical experiences with tablet integration in Korean rural schools. *Asia-Pacific Education Researcher*, 26(1-2), 107-116. <https://doi.org/10.1007/s40299-017-0331-8>
- Kim, H. J., & Jang, H. Y. (2015). Factors influencing students' beliefs about the future in the context of tablet-based interactive classrooms. *Computers & Education*, 89, 1-15. <https://doi.org/10.1016/j.compedu.2015.08.014>

- Kim, H. J., Park, J., Yoo, S., & Kim, H. (2016). Fostering creativity in tablet-based interactive classrooms. *Journal of Educational Technology and Society*, 19(3), 207–220.
- Krueger, R., & Casey, M. (2014). *Focus groups: A practical guide for applied research*. Londres: Sage.
- Nguyen, L., Barton, S. M., & Nguyen, L. T. (2015). iPads in higher education – hype and hope. *British Journal of Educational Technology*, 46(1), 190-203. <https://doi.org/10.1111/bjet.12137>
- Shank, D., & Cotten, S. (2014). Does technology empower urban youth? The relationship of technology use to self-efficacy. *Computers & Education*, 70, 184-193. <https://doi.org/10.1016/j.compedu.2013.08.018>
- Sung, Y., Chang, K-E., & Liu, T. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Computers & Education*, 94, 252-275. <https://doi.org/10.1016/j.compedu.2015.11.008>
- Van-Hove, S., Vanderhoven, E., & Cornillie, F. (2017). The tablet for second language vocabulary learning: Keyboard, stylus or multiple choice. *Comunicar*, 50(25), 53-63. <https://doi.org/10.3916/C50-2017-05>
- Zimmerman, S., & Howard, B. (2013). Implementing iPads into K-12 classrooms: A case study. In R. McBride, & M. Searson (Eds.), *Proceedings of society for information technology and teacher education international conference 2013* (pp. 2512-2516). Chesapeake, VA: AACE.

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Tablet u školskom i obiteljskom okruženju

Sažetak

U društvu u kojemu prevladavaju informacijska i komunikacijska tehnologija škole ne mogu ignorirati nove tehnologije. Stoga je glavni cilj ovoga istraživanja ispitati potencijal upotrebe tableta u radu s osnovnoškolcima u školi i u njihovome obiteljskom okruženju. Istraživanje je provedeno primjenom kvalitativne metodologije. U njemu je ukupno sudjelovalo 247 ispitanika – učenika, njihovih roditelja i nastavnika. Rezultati i zaključci pokazuju da se tableti u nastavi ne koriste sustavno. U praksi upotrebe tableta u školi potrebno je spomenuti njihovu upotrebu za provjeravanje/prikupljanje informacija, u istraživačke svrhe te za izradu audiovizualnih sadržaja, a tableti se kod kuće koriste u rekreativne svrhe. Najvažnije je da od samoga početka nastavnici i roditelji imaju pozitivan stav prema upotrebi tableta, jer to utječe na njihovu učinkovitiju upotrebu. Iako se tableti ne mogu smatrati sredstvom za poboljšanje akademskih postignuća učenika, oni pozitivno utječu na povećanje njihove motivacije.

Ključne riječi: obiteljsko okruženje; IKT; mobilni uređaji, osnovnoškolsko obrazovanje; tableti.

Uvod

Digitalne tehnologije pojavile su se u različitim stručnim područjima, uključujući i obrazovanje i osobnu upotrebu (Batdi, 2017). Općenito govoreći, informacijsko-komunikacijska tehnologija može olakšati i poboljšati dinamiku nastave, olakšati proces cjelokupnoga učenja i interakciju među skupinama ljudi, bilo gdje, bilo kada, s različitim mjestima te koristeći se različitim uređajima. Prema Zimmermanu i Howardu (2013), mobilni uređaji u sve većoj mjeri omogućavaju učenicima smisleno i specifično učenje iz njihova neposrednog okruženja i diljem svijeta. Stoga se može reći da je stvaranje prilika za učenje otvoreno i nije više ograničeno na fizičku učionicu, kao ni određeno školskim rasporedom. Međutim, tehnologija još uvijek nije potpuno integrirana u područje obrazovanja.

Mobilna tehnologija omogućava odgojno-obrazovnim djelatnicima da prilagode proces učenja učenicima tako što mogu osmisliti originalne i privlačne aktivnosti kako bi ih motivirali (Hess i Gunter, 2013). Međutim, to zahtijeva metodičke inovacije koje izlaze izvan okvira učionice. Sung, Chang i Liu (2016) navode da su učenje i nastava s

pomoću mobilnih uređaja inovativni sami po sebi. Tablet računala su digitalni uređaji koji nude najviše mogućnosti za inovacije. U stvari, njihova neformalna upotreba raširena je i među odraslima i među mladom populacijom.

Upotreba tableta jako je dobro prihvaćena u obrazovnom okruženju. Chen i Sager (2011) i Chang, Liu i Tsai (2016) tvrde da taj alat unapređuje digitalne vještine učenika i pomaže im u razvoju kreativnosti, a istodobno poboljšava njihov proces učenja i intrinzičnu motivaciju. Uprkos činjenici da taj uređaj nije prvobitno izrađen za edukativne svrhe, on se ipak ugrađuje u nastavu na različitim obrazovnim razinama kao inovativan alat (Butcher, 2016). Iako tableti nemaju tako moćne računalne programe kao prijenosna računala, oni tehnološki nude vrlo zanimljive mogućnosti i njima je lako rukovati. Njihova funkcionalnost neprestano se poboljšava, pogotovo zbog sve većeg broja dostupnih kompatibilnih aplikacija (Apps) (Falloon, 2015). Zato je važno analizirati kvalitetu i obrazovnu prikladnost tableta u školskom i u obiteljskom okruženju (Crescenzi i Grané, 2016).

Tableti bi mogli biti odlična pedagoška podloga za proces učenja i nastavni proces te postati dobar poticaj za promicanje inovacija (Botha i Herselman, 2015) i unapređenje obrazovnog procesa. U stvari, neke škole su integrirale tablete u nastavnu praksu kako bi promicale aktivnije učenje i potaknule učenike na razvoj akademskih vještina (Flewitt, Messer i Kucirkova, 2015; Van-Hove, Vanderhoven i Cornillie, 2017). Kontinuirano promicanje digitalne kompetencije ističe se među obrazovnim ciljevima u društvu 21. stoljeća. Učenici moraju imati pristup različitim medijima ili digitalnim alatima kako bi tražili informacije, obrađivali sadržaje, razvijali sadržaje u različitim formatima (audio, tekstualnim, video ili multimedijalnim) ili se koristili multimedijalnim igrama. Na taj način mogu poboljšati svoju digitalnu kompetenciju i istodobno utvrditi novo znanje.

Kako navode Kim, Park, Yoo i Kim (2016) nastava uz pomoć računala vodi uspješnoj i učinkovitoj nastavi i obogaćuje atmosferu u razredu. Istodobno se vraća na prije formulirane ideje, organizaciju informacija i vršnjački timski rad. Upotreba mobilnih uređaja omogućava rad s velikim brojem različitih podataka s pomoću aplikacija (Haßler, Major i Hennessy, 2015). Tehnološka oprema, pogotovo tableti, trebala bi kod učenika povećati mogućnosti za učenje (Shank i Cotten 2014).

Hutchinson, Beschorner i Schmidt-Crawford (2012) navode da je potencijal tableta za učenje izravno povezan sa sposobnostima nastavnika da se iskoriste sve njegove mogućnosti. Uloga roditelja i njihov odnos s djecom također su važni kako bi se tableti sustavno integrirali u školski kurikulum. Iako u osnovnoj školi postoji sve veći broj *digitalnih urođenika*, i dalje kod njih postoji nesklad u digitalnim kompetencijama. Zahvaljujući iskustvu s digitalnim uređajima, osnovnoškolci imaju računalne vještine za rad na njima i skloni su upotrebi tehnologije. Međutim, stvarne mogućnosti upotrebe tableta još uvijek nisu detaljno istražene jer škole imaju poteškoća u nabavljanju tih uređaja. Zato je glavna svrha ovog istraživanja analizirati i odrediti način na koji se osnovnoškolci koriste tabletima. Predložimo sljedeće specifične ciljeve:

- Odrediti način na koji se učenici koriste tabletima u školi i kod kuće.
- Otkriti koje aktivnosti učenici odrađuju na tabletima.
- Uočiti probleme koji nastaju upotrebom tableta.

Metode

U ovom istraživanju koristila se kvalitativna metodologija s narativnim pristupom putem višestruke studije slučaja. Takva vrsta istraživanja korisna je za kontekstualizirana istraživanja koja se provode u okruženju u kojemu se neki fenomen istražuje. Drugim riječima, istraživači koji rade u poznatom području mogu to područje dobro razumjeti jer promatraju sudionike i ispituju ih o svakodnevnom životu. Također postoji i veća mogućnost da će sudionici lakše razgovarati s istraživačima o događajima koji utječu na njihov život (Atkinson, Coffey i Delamont, 2003).

Uzorak

Ova višestruka studija slučaja provedena je na sjeverozapadu Španjolske (gdje se govore dva jezika) pa su tako njome obuhvaćene tri višejezične škole koje provode obrazovanje na osnovnoškolskoj razini (dob učenika od 6 do 12 godina). Školski kurikulum predviđen za te učenike promiče višejezično obrazovanje i upotrebu IKT alata. Nastavnici se potiču na razvijanje ključnih kompetencija (jezičnih kompetencija, matematičkih kompetencija, osnovnih kompetencija u području znanosti i tehnologije, digitalnih kompetencija, učiti kako učiti, društvenih i građanskih kompetencija, osjećaja za inicijativu i poduzetništvo, kulturalnih kompetencija i izraza) kako bi usvojili znanje o jezicima. Takvo znanje učenicima omogućava da tečno govore, čitaju i pišu na španjolskom jeziku, regionalnom jeziku i stranom jeziku (u ovom slučaju engleskom).

U Španjolskoj se osnovnoškolsko obrazovanje provodi na 6 razina. Kako je ovo kvalitativno istraživanje, odlučili smo odabrati sudionike (učenike, nastavnike i obitelji) na temelju blizine i naše mogućnosti da do njih lako dođemo. Istraživanje je provedeno u tri škole koje provode osnovnoškolsko obrazovanje, i to na prvoj, trećoj, petoj i šestoj razini. Skupina odabranih sudionika bila je prilično heterogena. Kriterij odabira škola bio je da upotrebljavaju tablete u nastavi. Tableti su uvedeni u škole u školskoj godini 2014./2015. Kako bi se zaštitili podatci o tri škole uključene u istraživanje, koristili su se pseudonimi. U školi Vivos tableti su uključeni u nastavu kod dviju skupina na posljednjoj razini obrazovanja (6.A i 6.B), a u školama Aca i Flo tableti se koriste na svim razinama osnovnoškolskog obrazovanja (prvoj, drugoj, trećoj, četvrtoj, petoj i šestoj). Sve odabrane škole posjeduju tablete za učenike, a djeca također imaju tablete i kod kuće.

U istraživanju je sudjelovalo ukupno 247 osoba, podijeljenih u 3 skupine: učenici (N=120), roditelji (N=107) i nastavnici (N=20). Učenici (64 djevojčice i 56 dječaka, u dobi od 6 do 12 godina) podijeljeni su u 24 grupe za raspravu (DG) – 3 grupe po razrednome odjeljenju, s 5 učenika u svakoj skupini. Učenici su sudjelovali u dijalozima i debatama koristeći se ovom tehniku. Odlučili smo osnovati grupe za

raspravu u svakom razrednom odjeljenju (kako ne bi smopomiješali učenike iz različitih razrednih odjeljenja) i u njih uključiti učenike oba spola (Tablica 1).

Tablica 1

S pomoću ankete otvorenoga tipa prikupili smo narativne podatke od 107 roditelja (očeva (N=29) i majki (N=78)) učenika koji su se koristili tabletima i u školi i kod kuće. Prosječna dob te skupine bila je 41 godinu za očeve i 43 godine za majke, sa srednjom prosječnom dobi od 42 godine.

Uzorak je također obuhvatio i 20 nastavnika – 3 nastavnika i 17 nastavnica. Dvojica nastavnika koji su sudjelovali u istraživanju imali su manje od 5 godina radnoga iskustva, a od 17 nastavnica njih 7 imalo je manje od 5, a 8 više od 10 godina radnoga iskustva.

Instrumenti i postupak

Kako nisu postojali objavljeni instrumenti koji bi se mogli prilagoditi cilju ovoga istraživanja, sami smo osmislili *ad hoc* instrumente uz pomoć četiriju stručnjaka s velikim znanjem o toj temi, tipologiji i istraživačkim tehnikama kojima smo se koristili. Time smo osigurali valjanost instrumenata.

Završna inačica instrumenta upotrijebljenog za grupe za raspravu prikupila je podatke o sudionicima i pomogla u izradi njihovih profila te obuhvatila smjernice za strukturirana pitanja. Ta pitanja izrađena su za učenike, njihove roditelje i nastavnike (u obliku anketa otvorenoga tipa) te su se usredotočila na sljedeće aspekte:

1. dimenzija: prvi kontakt s tabletom
2. dimenzija: uključivanje tableta u nastavu
3. dimenzija: reakcije obitelji na tablete.

Anketa otvorenoga tipa podijeljena je roditeljima kako bi se prikupili narativni podatci, a sastojala se od dva dijela s obzirom na kontekstualizaciju, profile i podatke povezane s navedenim dimenzijama. Prije nego smo počeli prikupljati podatke o djeci, njihove obitelji, nastavnici i upravljački timovi škola dali su svoju suglasnost. Učeničke grupe za raspravu organizirane su u sobi za odmor, a rasprave su trajale oko pola sata po grupi. Upravljački timovi izravno su podijelili ankete otvorenoga tipa roditeljima, kako bi se prikupili narativni podatci. Nakon toga su roditelji odložili svoje ispunjene ankete u uglu učionice. Anketom otvorenoga tipa koja je podijeljena nastavnicima također su se prikupili kontekstualni podatci i podatci o njihovu profilu, a anketa je sadržavala i pitanja u vezi s navedenim dimenzijama. Narativni podatci nastavnika prikupljeni su u *online* obliku, putem Gmail Drivea. Prije toga su nastavnici koji su sudjelovali u istraživanju putem e-pošte dobili poveznicu s pomoću koje su anonimno popunili i poslali anketu.

Analiza podataka

Nakon transkripcije, organiziranja i formatiranja podataka, proveli smo analizu sadržaja, pod vodstvom četvorice stručnjaka koji su sudjelovali u dizajniranju

instrumenata koji su se koristili u istraživanju. Tako smo kategorizaciju podataka proveli na najbolji mogući način. Glavni kriteriji ograničavanja kategorizacije, prema savjetu stručnjaka, bili su: neobrađeni podatci i njihovo podudaranje s ciljevima istraživanja (Krueger i Casey, 2014). Određene su potkategorije za ovo istraživanje, u skladu s kriterijima stručnjaka. Kategorija školskih i obiteljskih aktivnosti odrađenih uz pomoć tableta utemeljena je na vrsti dominantnih kognitivnih procesa i/ili karakteristika zadataka, a za kategorizaciju doprinosa i polemika vezanih uz tablete koristili smo se pozitivnim i negativnim aspektima upotrebe tableta (Tablica 2).

Tablica 2

Kategorizacija i kriteriji određeni za analizu sadržaja

Kategorizacija: 1., 2. i 3. razina		Kriteriji: Kategorije	
		2. i 3. razina	1. razina
1. razina	Upotreba u školi i u obitelji		
2. razina	➤ Školska praksa <ul style="list-style-type: none"> • Pretraživanje/ prikupljanje podataka • Istraživanje • Propitivanje • Crtanje 		
3. razina	<ul style="list-style-type: none"> • Izrada audiovizualnih sadržaja • Prepoznavanje • Spajanje • Popunjavanje praznina • Čitanje • Pisanje 		
2. razina	➤ Neformalna praksa <ul style="list-style-type: none"> • Pretraživanje/ prikupljanje podataka 	<i>Ad hoc</i> klasifikacija na temelju vrste prevladavajućih kognitivnih procesa i/ili karakteristika zadataka	Povezano s ciljevima istraživanja
3. razina	<ul style="list-style-type: none"> • Didaktičke igre • Audiovizualni sadržaji • Čitanje • Preuzimanje podataka s interneta 		
1. razina	Prednosti i polemike vezane uz upotrebu tableta		
2. razina	➤ Pozitivne strane <ul style="list-style-type: none"> • Neposrednost 		
3. razina	<ul style="list-style-type: none"> • Mala težina • Raznolikost • Motivacija • Poboljšava pažnju 		
2. razina	➤ Rasprava <ul style="list-style-type: none"> • Ekonomski trošak 		
3. razina	<ul style="list-style-type: none"> • Tehnički problemi • Zdravstveni problemi • Potrebna je edukacija 		

Za provedbu analize sadržaja koristili su se narativni podatci obrađeni s pomoću računalnog programa AQUAD (Analysis of Qualitative Data), inačice 7. Nakon određivanja glavnih kategorija podatci su kodirani, uzimajući u obzir porijeklo svake

skupine. U sljedećoj smo fazi provjerili analizu s obzirom na cjelokupan popis sustava kategorija, proučavajući prvu razinu kategorizacije i njezine potkategorije (drugu i treću razinu). Na taj smo način dobili rezultate s pomoću računalnog programa AQUAD i prebacili ih u Excel tablicu, što nam je pomoglo odrediti pojedinačne kategorije i njihovu brojčanu nadmoć. Međutim, iako numerička komponenta rezultata koju su prikazani s pomoću svoje frekvencije dosta otkriva, nije joj svrha naglasiti samo kvantitativni aspekt. Frekvencija je izračunata uzimajući u obzir prepoznavanje različitih potkategorija dobivenih iz neobrađenih podataka, razmatrajući frekvenciju (f) ideja koje je prezentirao svaki sudionik. Taj broj prezentiranih ideja izražen je u odnosu na ukupan broj sudionika u pojedinačnoj skupini (f/n).

Kako bi se zajamčila vjerodostojnost podataka, prikazujemo neke dokaze (koji se mogu iščitati iz dijelova narativnih podataka navedenih u ulomku Rezultati). Pouzdanost rezultata osigurana je zasićenošću podataka, a validacija podataka osigurana je triangulacijom perspektiva (3 skupine uključene u istraživanje i upotreba različitih tehnika: grupe za raspravu i anketa otvorenoga tipa). Kako su naveli Creswell i Miller (2000), robusnost rezultata može se dobiti kada su podatci koji su dobiveni s pomoću različitih instrumenata ispravni i u različitim skupinama, kao i putem komparacije i/ili komplementarnosti rezultata.

Rezultati

Rezultati istraživanja temelje se na grafičkim komponentama. Kako bi se njihova organizacija optimizirala, grupirali smo glavne kategorije s obzirom na dva ključna elementa (koji vode potkategorijama prve, druge i treće razine) u vezi s: upotrebom tableta u školi i kod kuće; prednostima i polemikama povezanim s upotrebom tableta u školi i kod kuće.

Upotreba tableta u školi i u obitelji

Upotreba tableta u školi ograničena je na učionicu, s fleksibilnim rasporedom i različitim načinima upotrebe, što ovisi o nastavnom stilu nastavnika, predmetu u kojemu se tablet koristi i sadržaju koji je nastavnik odlučio izraditi. Ovisno o predmetu, vrijeme upotrebe tableta može varirati između 2 i 10 sati tjedno, no uvijek pod nadzorom nastavnika. Učenici se u osnovnoj školi koriste tabletima u gotovo svim školskim predmetima, iako to još nije uvedeno kao standard.

Skupine koje su sudjelovale u istraživanju (roditelji, učenici i nastavnici) navele su da su glavni predmeti u kojima se učenici u osnovnoj školi koriste tabletima društvene znanosti i prirodne znanosti. Mala skupina roditelja pozitivno je ocijenila upotrebu tableta na jeziku autonomne zajednice i u umjetnosti kao školskom predmetu. Iskustva učenika i nastavnika pokazala su njihov interes za umjetnost, što je bio slučaj i s engleskim jezikom kao školskim predmetom. Međutim, vrsta upotrebe i vrijeme provedeno na tabletima u školi dosta su varirali u različitim područjima (tablica 3).

Tablica 3

Sudionici u istraživanju pozitivno su ocijenili praktične sate tijekom kojih su se učenici u školi koristili tabletima. Učenici su posebno uživali u aktivnostima pretraživanja/prikupljanja podataka i u aktivnostima istraživanja i propitivanja. Takvi praktični nastavni sati provedeni su uglavnom na nastavi društvenih i prirodnih znanosti, kao i na jeziku autonomne zajednice. Aktivnosti osmišljene kako bi se potaknula znatiželja djece i njihova kreativnost, ocijenjene su kao zanimljive, pogotovo one u kojima su montirali videomaterijale i snimali filmove. Ti zadatci uglavnom su se odrađivali na nastavi društvenih znanosti, a crtanje se vježbalo uglavnom samo na nastavi umjetnosti. Takvi kreativniji nastavni sati bolje su uspijevali u nižim razredima osnovne škole (na prvoj i trećoj razini osnovnoškolskoga obrazovanja). Donosimo neke dijelove kako bismo bolje ilustrirali rezultate.

Narativ br. 99: majka (41 godina) učenika šestoga razreda; škola Vivo (redovi koji su se koristili u analizi: 58-59).

„Moj sin koristi se tabletom u školi u predmetima: društvene znanosti i regionalni jezik. Njime se koristi u timu u kojemu on i njegovi vršnjaci moraju pretraživati informacije o određenoj temi i nakon toga izraditi audiovizualne prezentacije.”

Narativ br. 12: grupa za raspravu petoga razreda osnovne škole; škola Flo (redovi koji su se koristili u analizi: 57-63).

U1 (dječak 10 godina): *„Izrađujemo filmove na nastavi društvenih znanosti i s pomoću tableta pretražujemo puno informacija.”*

U4 (djevojčica 11 godina): *„Također se prerušavam, dobivamo ideje o likovima iz srednjega vijeka i s nastavnikom društvenih znanosti napravili smo film o povijesti.”*

U5 (djevojčica 11 godina): *„U sklopu projekta koji radimo na nastavi ovoga predmeta izrađujemo videoigru o rijekama u Španjolskoj, a nastavnik nam je rekao da ćemo je snimiti s pomoću tableta i da ćemo napraviti video s uputama.”*

U2 (dječak 10 godina): *„U prirodnim znanostima gledamo videomaterijale koje nastavnik pušta na tabletima pa na taj način možemo bolje razumjeti njegova objašnjenja.”*

Narativ br. 19: nastavnica (53 godine) koja radi s djecom u trećem razredu; škola Aca (redovi koji su se koristili u analizi: 52-55).

„Koristimo se tabletima uglavnom u ovim predmetima: prirodne znanosti, društvene znanosti, engleski jezik, umjetnost. Glavne aktivnosti koje provodimo utemeljene su na pretraživanju informacija, jačanju timskoga rada te snimanju i montiranju videomaterijala.”

U obiteljskom okruženju učenici također odrađuju zadatke na tabletima u društvu svojih roditelja (Tablica 4). Takva je praksa slična onoj koja se provodi u učionici i pomaže učenicima da prodube svoje znanje. Djeca takvim aktivnostima uglavnom pristupaju neformalno i uživaju u njihovoj zabavno-edukativnoj komponenti (pogotovo

u didaktičkim igrama, gledanju filmova i slušanju glazbe). Kao i aktivnosti koje se provode u učionici, mnoge aktivnosti koje se odrađuju s pomoću tableta povezane su s pretraživanjem informacija, često s ciljem ponavljanja pojmova i pružanja pomoći pri domaćoj zadaći. Te aktivnosti provode se u opuštenoj, rekreativnoj atmosferi. Djeca također fleksibilnije propituju druge akademske i osobne aspekte.

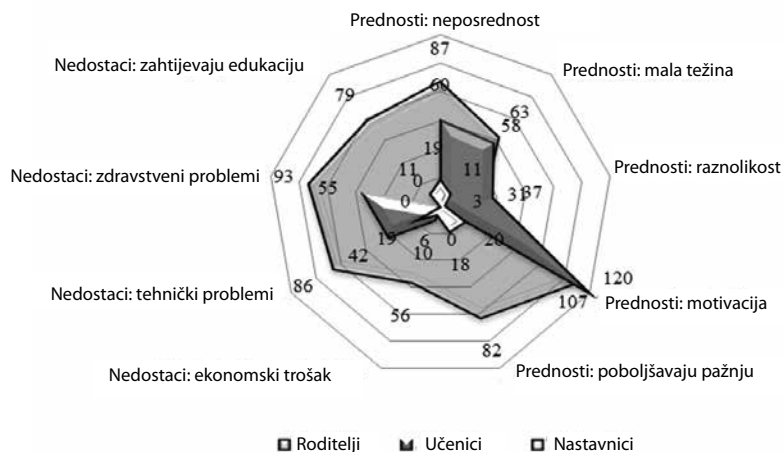
Tablica 4

Preuzimanje podataka, uglavnom aplikacija, još je jedna aktivnost koju učenici odrađuju na tabletima kod kuće. Te aplikacije su uglavnom osmišljene za rekreativne svrhe, iako su neke od njih povezane s akademskim zadacima. Međutim, nastavnici nemaju informacije o toj aktivnosti, što upućuje na nedostatak komunikacije, koordinacije ili suradnje između obitelji i škole. Drugi problem s kojim su obitelji suočene jest nedovoljno znanje o tome koje su edukativne aplikacije prigodne za preuzimanje na tablet.

Tableti imaju mehanizme s pomoću kojih se mogu stvoriti čitalačke vještine, ali rezultati istraživanja pokazuju da se mogućnosti koje tableti nude za razvoj čitalačkih vještina jako slabo koriste u obiteljskom okruženju, usprkos činjenici da se navike djece u toj dobi mogu lako oblikovati. Također, interesi djece nisu tako široki kao u doba adolescencije, djeca imaju više slobodnoga vremena, a nadzor obitelji nad djecom je izraženiji.

Prednosti i polemike vezane uz upotrebu tableta

Pod kategorijama (1. razine) povezanim s prednostima upotrebe tableta i polemikama u vezi s njima, i u školskom okruženju i kod kuće, grupirali smo aspekte koji se smatraju vrijednima i koji se smatraju prikladnima. Općenito gledajući, različite grupe upotrebi su tableta pripisale važne prednosti, iako su također spomenule i neke nedostatke (Prikaz 1).



Prikaz 1. Prednosti i nedostaci upotrebe tableta

Obitelji učenika općenito smatraju da tableti motiviraju njihovu djecu, ali nisu naveli znatna poboljšanja u akademskom uspjehu, iako su uočili pozitivan opći utjecaj. Iako roditelji smatraju da upotreba tableta u nastavi ima prednosti, nisu izravno poticali djecu da se njima koriste jer su kod djece primijetili rastuću tendenciju da se neprestano koriste tabletima, bilo kada i bilo gdje. U stvari, nastavnici su također naveli da roditelji ne potiču djecu na upotrebu tableta. Neki dijelovi narativa povezani s tim rezultatima ilustriraju takav stav.

Narativ br. 14: majka (41 godina) učenika trećega razreda osnovne škole; škola Flo (redovi koji su se koristili u analizi: 57-61).

„Uvijek govorim da ne smatram tablet igračkom. Ako se njime dobro koristi, moja kći može puno naučiti i razjasniti mnoge sumnje, ali ne može se njime koristiti cijelo vrijeme. Odobravam upotrebu tableta, ali, iskreno, ne potičem je da se njime koristi jer vidim da se toga i sama sjeti.”

Narativ br. 20: grupa za raspravu: šesti razred; škola Vivos (redovi koji su se koristili u analizi: 25-34).

U1 (dječak 11 godina): *„Moj otac voli kada se ponekad koristimo tabletima, jer na taj način više učimo o tehnologiji i spremniji smo za budućnost.”*

U2 (dječak 12 godina): *„Moji roditelji također vole kada se koristimo tabletima, ali ne uvijek. Moja majka misli da nam je zanimljivo učiti s pomoću tableta.”*

U4 (djevojčica 11 godina): *„Poticati..., ne potiču nas jer se boje da se tabletima previše koristimo i da to može utjecati na naš vid.”*

U5 (djevojčica 12 godina): *„Boje se da ćemo postati ovisni o tabletima pa zato donekle pokušavaju ograničiti njihovu upotrebu i ne dopuštaju nam da se njima koristimo kako bismo mi to željeli.”*

Narativ br. 1: nastavnica (42 godine) u petom razredu; škola Aca (redovi koji su se koristili u analizi: 98-104).

„Reakcije obitelji na uvođenje tableta u nastavu njihove djece su pozitivne. Neke obitelji aktivno surađuju i navode imena aplikacija... i također pomažu djeci u pohađanju različitih izvannastavnih aktivnosti.”

Obitelji, učenici i nastavnici naglašavaju da tablet djeci pruža zabavno i motivirajuće iskustvo. Slično tome, nastavnici smatraju da tableti poboljšavaju pažnju učenika i kao rezultat toga i njihov akademski uspjeh, iako dvoje nastavnika nije primijetilo taj pozitivan utjecaj. Drugi aspekti koje su skupine procjenjivale, ponekad vrlo oprezno, bili su: lakoća pristupa informacijama; mala težina tableta (što se smatra velikom prednošću kada ga djeca moraju prenositi s jednog mjesta na drugo) i raznolikost koju pruža (npr. lakoća odrađivanja različitih vrsta zadataka bilo gdje, bilo kada, i u bilo kojem položaju).

Iako je uvođenje tableta u nastavu imalo pozitivan utjecaj, treba se spomenuti i neke nedostatke. Neke skupine složile su se o tome da je glavni problem tehničke prirode,

što su posebno naglasili učenici i njihovi roditelji. Problemi sa spajanjem na mrežu ili tehnički problemi najviše zabrinjavaju. Neke posljedice povezane s pogoršanjem zdravstvenoga stanja (problemi s vidom i poteškoće nastale zbog prekomjerne upotrebe, što dugoročno može izazvati i neku vrstu ovisnosti) također kod roditelja izazivaju zabrinutost, a nastavnici naglašavaju nedovoljnu educiranost za upotrebu tableta (u mnogim su slučajevima nastavnici samoobrazovani) i zahtjeve koji im se nameću da se koriste tehnologijom. Neke prikazujemo u sljedećim ulomcima.

Narativ br. 46: majka (39 godina) učenika prvoga razreda osnovne škole; škola Flo (redovi koji su se koristili u analizi: 68-71).

„Pa, mislim da je dobro što moj sin radi na tabletu, ali njegovi nastavnici i obitelj bi ga trebali kontrolirati kako bi se izbjegla prekomjerna uporaba i na taj način spriječili zdravstveni problemi.”

Narativ br. 5: grupa za raspravu: treći razred osnovne škole; škola Aca (redovi koji su se koristili u analizi: 88-91).

U1 (dječak 8 godina): *„Što se mene tiče, glavni nedostatak tableta je to što postanete ovisni o igrici, igrate je cijeli dan i na kraju si oštetite vid.”*

U5 (djevojčica stara 9 godina): *„Upravo se to dogodilo meni. Nosim naočale zato što sam puno na tabletu gledala „Cantajuegos” i to mi je oštetilo vid.”*

U3 (dječak 8 godina): *„Osim toga, ponekad bežična mreža ne funkcionira i tada nemamo pristup internetu pa jedva da i možemo raditi na tabletima.”*

U4 (djevojčica 8 godina): *„Iako baterija dugo traje, ako se isprazni, to je još jedan nedostatak.”*

U2 (djevojčica 9 godina): *„Ako se puno koristite tabletima, možete dobiti glavobolju.”*

Narativ br. 10: nastavnica (32 godine) u trećem razredu osnovne škole; škola Flo (redovi koji su se koristili u analizi: 107-115).

„Jako je zanimljivo raditi na tabletima, ali mislim da trenutno nastavnici nemaju sredstva za to, jer su tableti skupi i ponekad ih je teško upotrebljavati. Većina aplikacija koje su zaista vrijedne koštaju dosta novaca. Osim toga, potrebna je i prethodna edukacija nastavnika.”

Analiza poteškoća povezanih s nabavom tableta i njihovom upotrebom u školi upućuje na nedostatak digitalnih vještina nastavnika koji proizlazi iz njihovih slabih tehnoloških resursa i nedovoljne edukacije u tom području. Taj nedostatak uglavnom utječe na nastavnike, a protuteža mu je njihov pozitivan stav. Isto tako, taj se nedostatak smanjuje jer nastavnici ulažu trud u svoj napredak. Također smo prepoznali i neke prepreke učinkovitoj suradnji između škola i obitelji. Na primjer, iako određena škola ima problema s nabavom tableta, učenici koji imaju tablete kod kuće ne nose ih u školu.

Rasprava i zaključci

U nekim istraživanjima (Çukurbaşı, İşbulan, i Kıyıcı, 2016) došlo se do spoznaja da upotreba tableta ima velik potencijal u školskome kontekstu. U stvari, škole se sve

više i više koriste tabletima. Ovo istraživanje pokazuje da je uključivanje tableta jako sporo u nekim težim kontekstima te pokazuje manjkavosti povezane s resursima ili s edukacijom nastavnika.

Tableti se trenutno ne koriste u svim predmetima niti se mogu smatrati standardom. Isto tako, u razredu se jako malo vremena provodi u radu na tabletima. Usprkos preprekama za upotrebu tableta, nismo primijetili skeptične stavove prema njihovoj upotrebi.

Ovo istraživanje je pokazalo da su društvene znanosti i prirodne znanosti glavni predmeti u kojima se učenici koriste tabletima. Nastavni sati na kojima se tableti praktično primjenjuju uglavnom su usmjereni na pretraživanje/prikupljanje informacija, analizu iskustava i sadržaja, propitivanje, izradu audiovizualnih materijala i crtanje. Kao dio zabave kod kuće učenici gledaju videomaterijale/filmove ili igraju edukativne igre. Od tih aktivnosti izdvajamo pretraživanje informacija u različitim akademskim zadacima u koje je uključena cijela obitelj. Aplikacije pogodne za edukativnu upotrebu jako su korisne, pogotovo u obiteljskom okruženju i smatra se da one olakšavaju usvajanje nastavnih sadržaja i pozitivno utječu na motivaciju i proces učenja kod učenika. Naglašavamo da upotreba interneta pomaže otkrivanju mrežnih stranica koje razvijaju različite interese, kao i one koje omogućavaju besplatno preuzimanje aktivnosti prikladnih za djecu na osnovnoškolskoj razini obrazovanja.

Za početak, doprinos i evaluacija dobivena od ljudi uključenih u istraživanje (nastavnika, učenika i roditelja) trebala bi biti pozitivna kako bi se tableti uspješno integrirali u nastavu. Ovo je istraživanje pokazalo da roditelji smatraju da tableti jako motiviraju djecu. Međutim, roditelji uglavnom ne potiču jako djecu da ih upotrebljavaju, objašnjavajući da se djeca njima ionako već samostalno koriste. Isto tako, roditelji ne smatraju da tableti izravno vode znantnom poboljšanju akademskog uspjeha njihove djece. Slično njima, Nguyen, Barton i Nguyen (2015) došli su do spoznaja da tableti ne vode nužno poboljšanju u učenju, iako njihova upotreba u obrazovnom kontekstu poboljšava učeničko iskustvo učenja. Ipak, nastavnici i učenici voljni su uključiti tablete u nastavu i zajedno s roditeljima naglašavaju razne prednosti, ali i nedostatke tableta.

U skladu s rezultatima drugih istraživanja (Jeong i Kim, 2017; Kim i Jang, 2015), nastavnici tvrde da je rad na nastavnim aktivnostima uz pomoć tableta dobar način motivacije učenika u razredu i da također pozitivno utječe na učeničku pažnju. Među pozitivnim obilježjima toga uređaja učenici i obitelji koji su sudjelovali u istraživanju uglavnom naglašavaju njegovu malu težinu i praktičnost, kao i mogućnosti koje on nudi u smislu neposrednog pristupa velikom broju informacija i raznolikih resursa.

Tri skupine uključene u istraživanje slažu se da je najveći nedostatak upotrebe tableta u razredu zapravo tehničke prirode. Nastavnici također navode i nedostatak edukacija u području tehnologija. Tehnička infrastruktura postoji, no ona sama po sebi nije ključan element za uspješnu upotrebu tableta. Međutim, nedostatak edukacije u području tehnologije, nedostatak pozitivnoga stava prema digitalnim uređajima i

nedovoljna upućenost u njih vode prema većem jazu. S druge pak strane, i učenici i njihovi roditelji ističu zdravstvene probleme do kojih upotreba tableta može dovesti; na primjer, oštećenje vida ili problem ovisnosti.

U suvremenom okviru, mobilni uređaji testiraju granice između formalnog i neformalnog obrazovanja, između nastavnika i učenika, ili pak između kuće i školskog okruženja, jer se učenje uspješno odvija na temelju raznovrsnih izvora i okruženja (Clarke i Luckin, 2013). U svakom slučaju, kako bi se omogućila produktivna i relevantna upotreba tableta, oni bi se u školskom kontekstu trebali sustavno koristiti i smatrati se svakodnevnim alatom za rad u nastavi. To bi mogla biti alternativa čvrsto ukorijenjenoj upotrebi udžbenika uz koju idu tradicionalne didaktičke metode. Istodobno, potrebna je veća koordinacija između nastavnika i obitelji kako bi se u osnovnoškolsko obrazovanje integrirali tableti, jer nismo uočili nikakve dokaze o suradnji između tih dviju skupina, kao ni učinkovite radnje koje bi pomogle u rješavanju tog problema.

Napomena

Ovo istraživanje provedeno je u okviru istraživačkog projekta o upotrebi tableta u osnovnoj školi. Željeli bismo zahvaliti institucijama (Sveučilištu u Vigu, Ministarstvu obrazovanja, kulture i sporta Španjolske - Ref. FPU 15/00091 i školama koje su sudjelovale u istraživanju), a posebno sudionicima u istraživanju.