THE DIGITAL LITERACY AND MULTIMODAL PRACTICES OF YOUNG CHILDREN

Learning in emergent environments

SHORT TERM SCIENTIFIC MISSION

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INTRODUCTION
Promotion of educational community member’s interaction should be effective in innovative scenarios. Students must build their learning based on it and properly stimulated by their teachers. For example, participating on collaborative activities based on project methodology.

In digital age, there are many resources that offer a range of easy integration tools in daily school life. However many are available without scientific approval or articulation with the school curriculum. Thus, four municipalities in northern Portugal considered appropriate to offer their basic education teachers a digital education platform (Figure 1) gathering tools with great scientific rigor to provide innovative learning experiences in child training. Scientific rigor is guaranteed by the team involved in project design. The team integrates teachers and researchers of the University of Minho (host institution of scientific mission). The University of Minho provides training to teachers that integrate the project with students from 6 to 8 years and older.

Figure 1. +Cidadania platform
http://erecursos.lusoinfo.com/Mural?plat=maiscidadania

The project that I had the opportunity to know results in an educators network interested in specific skills development about the use of technology as an educational resource, providing a stimulus to the dissemination of good practices. The challenge is to use resources available on a digital platform, +Cidadania, in programmed activities, inside and outside the classroom,
strengthening the civic skills of the children involved as well as the participation of educators, parents and teachers:

- Publications related to the activities in the classroom using the content available in the platform and platform activities accessed by teachers, students and families;

- Multimedia resources for use in classes about the following themes (biodiversity water, energy, waste, consumption, climate change) - infographics; multimedia exploration, evaluation questionnaires of knowledge;

- Image database;

- Online awards for student performance - automatically assigned by the platform while students explore the resources or assigned by the teacher based on the student success.

OBJECTIVES

The aim of this study is to understand and analyse the use of such educational resource and the result of its integration in formal and non-formal childhood educational settings. Had been defined the following specific objectives:

- Understand the perspective of teachers involved in the project;

- Identify the digital and interactive tools used in +Cidadania project;

- Analyse the strengths, weaknesses, potential and obstacles in the use of resources available on the digital platform associated with the project;

- Identify the motivation of the students in the use of digital and interactive project tools;

- Describe meaningful learning practices in +Cidadania project.

Methodology and participants

A qualitative methodological approach that is deemed appropriate in the social sciences was used. In the study participated teachers during the
training process in the +Cidadania project. Data were collected from the participant observation and through semi-structured interviews to teachers who have integrated the project. The final number of participants was set depending on the saturation of the data and the availability of teachers, resulting in 23 teachers involved.

Data collection took place during the classroom training sessions for teachers, from semi-structured interviews. Teachers were free to organize their ideas independently. The goal was to show their subjective testimony about the challenges associated with the project +Cidadania.

Analysis

The interviews were analysed using content analysis, establishing a first and second level category system. As expected, data were compiled to analyse the main challenges related to the promotion of information and communication technologies use among children.

RESULTS

Analysis of the data showed up the following categories of 1st level (and 2nd level): access to technological equipment (in school and out of context) strengths (to improve the quality of teaching and learning process, motivation of students, the implicit scientific rigor, availability of resources, ease of use, visibility and professional sharing, availability of resources and the appealing nature thereof), weaknesses (organization, lack of suitability of some features to the age of students, the limited number of recreational resources, lack of interactivity and the lack of a good practice guide), opportunities (to gamification, curriculum integration, communication between members of the educational community), constraints (associated with students, teachers and the rest of the educational community) and best practices.

Access to technology

Regarding the conditions of access to computer equipment and internet in schools and outside, necessary for the use of +Cidadania platform were evident large asymmetries. With regard to the school context coexist well equipped schools and others with serious deficiencies that hypothetically
could derail the implementation of the project if there was enthusiasm and willpower of the teachers involved.

Resulting from the modernization of schools, there are schools that benefit from good structural conditions, evident in computer equipment available, computers, projectors and/or interactive whiteboards in the rooms where streamline activities within the project. In other schools, the same equipment are few. The lack of equipment is exceeded by teachers' effort. Some teachers rely on own resources, using laptop personal computer to the activities in the classroom. In some school where missing projectors, this equipment is available weekly by a mother who goes to school to allow the necessary minimum conditions exist. A teacher involved concerns "was the least, the existence of a computer in every room."

Concerning access to computer equipment in the family context, inequalities are also evident, depending on the social context. Students from disadvantaged social backgrounds have greater difficulty in access to computers and the internet, in contrast to the more favourable social media. A teacher points out that "In the most disadvantaged students do not have ICT resources." However, students overcame difficulties and unfavourable conditions. A teacher states that "Those who do not access at home go to the neighbour's house." It should be noted also that even in more privileged social contexts, there is some internal heterogeneity. By the way, one teacher says "A small group of students has no computer. They are those who have more difficulty".

Other equipment, such as game consoles and tablets, associated with fun times, have great expression and are easily accessible, regardless of social context, is associated with lower purchasing value. With regard to Internet access, point out to the problems associated with their speed, resulting in difficulty to access online videos available, for example.

Thus, the access to resources needed for the project, it is concluded that the scenarios are revealed quite heterogeneous.
**Strengths**

From the discourse analysis of the participants we were able to identify the following 2 level categories, with regard to the strengths of the +Cidadania project and its platform: improving the quality of teaching and learning process, motivation of students, the implicit scientific rigor, availability of resources, ease of use, visibility and professional sharing and the its appealing character.

Teachers are unanimous in agreeing that the use of technological resources associated with the project support software platform promotes improving the quality of teaching and learning process. A teacher points out "the pedagogical practice enriches work". For the motivation of students, the results are also very positive and encouraging. The enthusiasm for the activities and the platform is contagious. The following are illustrative excerpts "students want more. Once you see the fly, project mascot, they get excited. Sometimes we even see other resources without being related. Students appreciate it"," ... It has a positive impact, motivating teachers and students. Parents' Association contributed with resources "The classes are more appealing "," facilitates the class motivates students improve learning"," are always asking when will they use it again. It is an element that fosters learning", "It has a positive impact on student motivation".

In general the use of ICT motivates students, leading them to more meaningful learning "students love everything that is related to ICT. They are eager to learn. I have a student with cognitive impairment with great interest by the PC. It has difficulty in writing. Use PC motivates him", "I ask to copy the test in the text editor. They ask a lot where to place accents. Those who do not have support at home are wondering how to change line to make a paragraph".

The underlying scientific rigor to the various available resources is also one of the strengths of the project. Teachers consider it as a platform using the promoting factors in different pedagogical practices and value the credibility of the project. An excerpt of the speech on the subject: "It is important to know that the scientific part has quality".
The available educational resources are also the best value for its pedagogical usefulness. A teacher refers to a "strong point is the bank of resources, useful to the teacher". Another favourable aspect is the ease of platform use of that resource bank and its potential. Two teachers mark "are not accurate large ICT skills to use the platform" and "It's intuitive", The no existence of significant additional requirements allows good receptivity of teachers to the initiative. In this sense, a teacher points "There were no additional equipment. But if everyone had mobile phone or tablet computer would be better".

Teachers consider that public exposure of their professional activities with the children constitutes a favourable point of the initiative. Parents value the transparency. Teachers are unanimous in the opinion. Some professionals refer to "to see the work of others have advantages, gives ideas"; "Is an asset be viewed online anywhere, by parents, as well as the sharing of the results of teaching."

Another factor that contributes to the good receptivity of teachers to the digital platform +Cidadania lies in its appealing character and quality of available resources. In some cases, there is even the use of visual reference that contribute to captivate children, awakening them to knowledge. A teacher stands "in terms difficult to understand there are links to the explanation with image of the mosquito."

**Weaknesses**

From the speeches of the participants, it was possible to highlight some unfavourable points regarding the use of the digital platform: the organization; the lack of suitability of some features to the age of students; the limited number of recreational resources; the lack of interactivity and the lack of a good practice guide.

As regards the organization, some teachers recognize the need for better structuring of available resources. He compared it with other platforms where the contents are presented by grade. They have a suggestion "resources should be organized by age".
The lack of adjustment of some resources to the age of the students is also identified by teachers as a weak point of the platform. For example, a teacher suggests the use of a character to mediate the relationship of younger students with available content "in the quiz the student of the 1st year can't read or write. It has to be a teacher to read the questions. The Ant (character) could speak." Another teacher said that "there should be more activities directed to the young. **Specifically with regard to language, some terms are not suitable to age level.**" About the quiz and its relevance and adequacy a teacher points out that "The quiz is useful but only a final stage, as assessment of acquired knowledge".

The number of recreational resources is -for some teachers- insufficient. Consider that a further development of the platform should focus precisely on its entertainment component. Although they are aware that the project is in an expansion phase they notice that "The playful part should be directed to the age"; "In class students want more, operation is fast because there are fewer resources" and "lack of resources for training".

The lack of interactivity is revealed as a weak point for some teachers. One teacher suggested "to increase interactivity in games." Similarly, a teacher shows a gap related to the existence of a good practice guide. However, she believes that this deficiency is overcome by classroom training with other teachers "should be a manual or planning to suggest the use of online resources. These formations have some impact on new activities to be develop in the future with the students".

**Opportunities**

The project **Cidadania** and its digital platform even support also contain a set of opportunities highlighted by the participants in this research. The possibility of gamification in learning was established as a platform of surplus value. The teacher has the ability to assign the virtual badge or paper image resulting from the print and assign it to the student who satisfactorily completed a task and/or a stage in their learning. Transforming the process of learning a game where the achievements are valued, it can be more motivated which can contribute to an improvement in the quality of teaching.
and learning process. Teachers agree that "the badges are acquired by students as they explore creative activities and resulting achievements" and that "the badges are key to motivation."

The curriculum integration is an aspect that must continue to be promoted in this project, to be valued by teachers. Educators consider appropriate to use the platform and project activities under the syllabus and other educational activities planned at each level of education, "the project is also integrated in the education theme for citizenship is very useful. The teacher thus invests in planning. Students absorb much of what the teacher says"; "We take the issue of water for the carnival parade"; "The platform serves as the motto for manual activities, artistic expression, music and the dissemination of the same", “Project activities arouses interest for further learning. It sounds good to me that using words that students do not know. So they will awake to when they hear on TV."

Another opportunity that should continue to be explored, resulting from the dynamics of the project +Cidadania is the communication between the school and parents and/or guardians. Encouraged to participate in activities within the project, such as the creation of its mascot, the educational community tends to get involved in school life, approaching of their children, becoming an affective and effective support of the academic record of smaller. A teacher points out that "has been sought collaboration with parents to design mascot creation." Two other understand that "the possible involvement of parents is a way to realize the work in school" and that "it is a possibility approach to families".

Constraints

+Cidadania also has some constraints. In particular, with regard to the use of digital platform, it was established two subcategories of analysis relating to: the students and their social context, and teachers and remaining educational community.

With regard to teachers, it is evident: the lack of computers in schools, the difficulty of access to the Internet, the lack of feedback and involvement of
parents, resulting often the context and disadvantaged social environment, the characteristics of each teacher and methodological options, the difficulty of managing the class times according to several requests, lack of interest and motivation of students, the difficulties in the dynamics of management classes and own teaching activity.

The lack of resources, including computers in schools, and the difficulty of access to the internet, are assumed to be constraints, by obstructing the pursuit of potential activities under the project. Some teachers refer "the class is boring because everyone wants to explore and there is only one computer", "schools should be better equipped to resulting project, the school should have equipment. The conditions are bad. Access to ICT is not easy", "the platform is good but the resources are not in class", "not worth presenting videos. The internet at school is not very good", "lack of computers", "the conditions in primary schools should be the same as others". Considering now the speed of Internet access, we detected the existence of disparate realities. In the school network of the four municipalities involved, there are schools with good access to the Internet and educational establishments where technical problems hamper the educational activities "access to the image repository is slow."

The lack of feedback from parents regarding the activities associated with the project is constituted also as a constraint to achieving better positive impact. Teachers suggest the use of home platform however feel that the calls are not met "in relation to parents there is no feedback."Exceptionally there is some receptivity in the case of households with higher availability for the monitoring of school activities of students "some see at home, in the case of concerned parents". Teachers lament the fact they understand that the resources available on the platform could serve as a motto for parent learning moments and children associated with the parents designate "quality time" with their children, "it was possible to use the platform as a resource learning between parents and child. There should be more availability of fathers to work platform together this type of learning can be quality time that both crave". One reason may lie in its low academic level that prevents the
tracking of more demanding activities "little support from families, low level of education".

The socio-economic background is another constraint to increase the positive impact "teachers suggest activities but at home parents does not have the capacity to support them due the economic and cultural level. Most are unskilled workers". The context is a constraint. A teacher points out "parents think it's a waste of time. The teacher should teach contents. This has to do with the level of education of parents."

The individual characteristics of each teacher, as the timidity of some, is assumed as a constraint to the development of project activities. It would be expected that teachers disclose the good practices stemming from resources available in the project platform; however, attitudes that hinder their ability exposure are not favourable. A teacher points out not to be prepared to manage the belief that other colleagues will or not about their work "I do not public because I am afraid of opinion" This attitude is contrary to the logic of sharing knowledge and implicit social network project. Postures contrary collaborative work logic also affect the project implementation. Some people refer to "the teachers work in isolation. Occasionally they work with teachers who teach the same level".

Similarly, teachers with little capacity to overcome any technical problem also do not contribute to the project's success. This is because "the lack of technical capacity can undermine the self-confidence and problem-solving capacity".

Traditional professional practices of some teachers are contrary to the concept of educational innovation that underlies the project. Adding to the list of constraints "The punishment they give is to make copies". Some teachers use the projected images only, assuming a central position in the classroom dynamics. Other postpone disclosure of the password to students, limiting the opportunities that potentially would have to access the platform and explore the resources available. One of the arguments used focuses on the fact that she intended to increase the amount of personal contributions, so that the charge of accessing education at a time where they will have more
and better publications of their classes to see. Another is that they fear the lack of interest of students following the home platform query. Some people refer to "not give the password because you lose the surprise factor". They suggest the creation of the possibility to put or not visible to the students some of the resources.

Other constraint to the success of the initiative is lack of time revealed by teachers. It is clear that this condition affects negatively the activities with students. Suggest that there should be on your schedule "time to implement this project".

The lack of motivation of some teachers and awareness of the finite nature of the project can be a constraint to its greater involvement, essential for the project to last. There is awareness that "you need someone to motivate. When it is finished you lose interest".

The difficult of dynamic management in classes where they use digital resources make it impossible to intensify practices using these capabilities. A teaching refers to "do not use because the classes are noisier. It will bring additional work to the teacher". The students' lack of interest outside the school aggravates the situation "Most students have access to ICT and only entered the platform on which was given the password".

Other problems will affect the normal promotion of activities under the project. There are some technical difficulties to overcome, specifically those related to sending personal photos for publication on the wall. A teacher suggests the creation of a mobile application "the teacher takes pictures with your phone, and save it in the cloud and then publish it. The best would be that the photos were sent directly from an application on the phone".

Best practices

Describing successful experiences, we intend to contribute to the promotion of meaningful learning in the project +Cidadania. The presentation of good examples intended to disseminate the project's potential, the voice of the people who participate in it and use digital and interactive tools available. With regard to the opinion of the participants, the best practices associated
with the platform use are related to their potential in attention to specific needs of students.

In the case of an autistic student to use the platform has proved extremely suitable for reading "the parents of autistic student support at much more than the other parents, because they are very interested. The autistic student gives up in the presence of a lot of text, but the platform is suitable for him".

In general, the use of technological equipment contributes to improving the quality of teaching and learning in general and reading and writing in particular "have an autistic child. I use the text editor with him. He writes words as father, mother, etc. He has problems of motor skills, pencil with adapter is not enough. So I use the computer with him".

Students are receptive to the project and the inclusion of digital resources available in their daily practice "I have the syllables prepared in the computer workplace. I show them all days." Sometimes they contribute to the resolution of some type of technical barrier - a situation that was evaluated positively by the teacher. A teacher states that "students are accustomed to new technologies and help the teacher".

In rural contexts students are very receptive and motivated students for all these initiatives "students from rural areas have a greater receptivity. Asked to them an activity and they do it quickly, send it by email or bring it in the pen drive" and "students ask to see their activities published online".

Another good practice that could be replicated in other projects is the existence of a physical support, a book for each student, which follows project timeline. The feeling of belonging to a project is materialized in that book. Some students are just as responsible for the preservation of its integrity in the same way they are for a school report. "The hardware is important. They keep the project book nearby the school report".

RELEVANCE OF OUTCOMES: PROPOSALS

The results showed aim to deepen understanding of the use of information technologies in educational contexts in childhood. It is expected that the
analysis of feedback contributes to the knowledge of reality and hence promote the quality of future results.

Resulting from the acquired knowledge, I present a set of suggestions to the promotion of best educational practices regarding the use of digital and interactive features in the teaching-learning process of children less than 8 years, especially in the reading and writing concerns:

- Provide parents with basic academic training guides for the use of technology platforms that enable them to support their students in learning activities outside formal educational settings;
- Available examples of good practices inclusion of ICT as an educational resource in practices associated with reading and writing with children;
- Provide tutorials teachers for use of digital promotion tools of reading and writing, relating in particular to the sound editing, image, video;
- Create discussion forum for users of the technological platform in question;
- Create teacher involved in the project meetings;
- Create a social network for sharing experience, especially on the use of digital and interactive tools available for the project;
- Use application for mobile devices that enable rapid sharing photos and content on the project platform;
- Increase the amount of educational resources (videos, images, play activities) available in the project platform;
- Create email alerts with suggestions for innovative educational uses of ICT in the promotion of reading and writing;
- Create the option on the platform - for teachers to decide to put visible or not a particular feature.
CONCLUSION

With the presentation of this report it ends a period that allowed me to:

- Know the project +Cidadania which provides educational resources for teachers, students and remaining educational community, cross usefulness to the curriculum;
- Participate in training sessions with teachers who implement the project;
- Working with teachers and researchers from a different institution, strengthening future synergies between the institutions involved in the pursuit of scientific goals COST action DigiLitEY.

In addition, related to observation and participation in the working dynamics of the sessions, I reinforced my conviction of the effort and dedication of teachers to provide innovative learning opportunities to their students. Aware that the dynamics of this project are much more vast than that I could experience, I wish that this work arouse the interest of other educational communities and enabling its territorial expansion and the subsequent dissemination of an educational resources with high quality and interest for children.

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