THE CHALLENGE OF LEARNING IN THE DIGITAL AGE. AN ANALYSIS OF THE DER
(School textbook, Portuguese Language, 12th year)

Dulce Franco

Investigadora do Centro de Estudos Interdisciplinares em Educação e Desenvolvimento (CeiED) da Universidade Lusófona de Lisboa.

dulce.franco@ulusofona.pt

Esmeralda Santo

Investigadora do Centro de Estudos Interdisciplinares em Educação e Desenvolvimento (CeiED) da Universidade Lusófona de Lisboa.

emas.sec@gmail.com

ABSTRACT: With increasing frequency, students and teachers use the Information and Communication Technologies (ICT) to search, communicate and/ or interact. Nowadays, the use of paper, pen and of the traditional school textbook is complemented by digital educational resources (DER). In fact, since 2010, the latest editorial Portuguese projects (school textbooks) are representative of this challenge that indicates there is a (re)configuration of the process of acquisition of knowledge (students), as well as of the methods and strategies outlined by teachers.On the other hand, the challenge of using DER in learning contexts, which complete the current multimedia school textbooks, puts us questions about the function(s) and role(s) of the student's academic learning construction. Thus, we developed a study for the evaluation of the DER proposed in a textbook of the Portuguese Language (12th grade) that occupied the 5th position of the national chart selection, in 2012. The study was conducted by means of a qualitative approach, in two secondary schools in the region of 'Grande Lisboa' with a sample around 100 students in the 12th grade (High School), who worked with that text book during the school year 2013.The data collection instrument was an *on-line* questionnaire survey. And, as Coll and Marti (2004), stress, different technological resources mobilize cognitive processes differentiated by promoting and encouraging the development of new skills, competencies and knowledge. So, we pose the following interrogations: Does the use of DER promote proactive behaviors? Do DER motivate and contribute to the consolidation/ systematization of the students' acquisition of knowledge? Are DER of quality? Do those resources provide pedagogical information, thus generating research in other sources of knowledge?Throughout this study we intend to listen to the main users of the textbook and assess its reception of the DER, thus optimizing a pedagogical better implementation.

Key-words: DER.Educational Technologies. School Text books. Didactics.

RESUMO: Com o aumento da frequência, os alunos e professores utilizam as Tecnologias de Informação e Comunicação (TIC) para pesquisar, comunicar e/ ou interagir. Hoje em dia, o uso de papel, a caneta e a da escola tradicional livro é complementado por recursos educativos digitais (RED). Na verdade, desde 2010, o mais recente editorial projetos portugueses (manuais escolares) são representativos deste desafio indica que há uma (re)configuração do processo de aquisição de conhecimento (os alunos), bem como dos métodos e estratégias delineadas pelos professores. Por outro lado, o desafio de usar a RED, em contextos de aprendizagem, que completa o atual multimídia manuais escolares, nos coloca questões sobre a função(s) e função(ões) do acadêmico do aluno de aprendizado de construção. Assim, desenvolvemos um estudo para a avaliação do RED propostas nos manuais escolares de Língua portuguesa (12º ano) que ocupava a 5ª posição nacional gráfico de selecção, em 2012. O estudo foi realizado por meio de uma abordagem qualitativa, em duas escolas secundárias da região da "Grande Lisboa", com uma amostra de cerca de 100 alunos do 12º ano (ensino médio), que trabalhou com trabalhou com o livro de texto durante o ano letivo de 2013. O instrumento de coleta de dados foi uma linha de inquérito por questionário. E, como Coll e Martí (2004), de estresse, de diferentes recursos tecnológicos mobilizar processos cognitivos diferenciados, promovendo e incentivando o desenvolvimento de novas habilidades, competências e conhecimento. Assim, apresentamos os seguintes questionamentos: será que o uso do DER promover comportamentos proativos? Os RED motivam e contribuem para a consolidação/ sistematização dos alunos na aquisição do conhecimento? São os RED de qualidade? Fazer esses recursos fornecem base pedagógica de informações, gerando, assim, a pesquisa em outras fontes de conhecimento? Ao longo deste estudo pretendemos ouvir os principais utilizadores do livro didático e avaliar a sua recepção do RED, otimizando assim pedagógico para melhor aplicação.

Palavras-chave: RED, Tecnologias Educacionais, Livros de Texto Escolares. Didática.

RESUMEN: Con creciente frecuencia, los estudiantes y profesores utilizan las Tecnologías de la Comunicación (TIC) y para buscar información, comunicarse y / o interactúan. Hoy en día, el uso de papel, la pluma y el libro de texto de la escuela tradicional se complementa con recursos educativos digitales (DER). De hecho, desde 2010, los últimos proyectos portuguesas editoriales (libros de texto escolares) son representativos de este desafío que indica que hay una (re) configuración del proceso de adquisición de conocimiento (los estudiantes), así como de los métodos y estrategias esbozado por teachers.On por otro lado, el desafío de utilizar DER en contextos de aprendizaje, que completa los actuales libros de texto multimedia, nos hace preguntas acerca de la función (s) y el papel (s) de construcción de aprendizaje académico del estudiante. Por lo tanto, hemos desarrollado un estudio para la evaluación de la DER propuesto en un libro de texto de la Lengua Portuguesa (grado 12) que ocupaba la quinta posición de la tabla de la selección nacional, en el año 2012. El estudio fue realizado por medio de un enfoque cualitativo, en dos escuelas secundarias de la región de 'Gran Lisboa' con una muestra de alrededor de 100 estudiantes en el grado 12 (escuela secundaria), que trabajó con ese libro de texto durante el instrumento de recolección de datos de 2013. el curso fue una encuesta en línea. Y, como Coll y Martí (2004), el estrés, los distintos recursos tecnológicos movilizan los

procesos cognitivos diferenciados por promover y fomentar el desarrollo de nuevas habilidades, capacidades y conocimientos. Por lo tanto, planteamos las siguientes interrogantes: ¿El uso de DER promover comportamientos proactivos? Motivan DER y contribuir a la consolidación / sistematización de la adquisición de conocimientos de los estudiantes? DER son de calidad? ¿Esos recursos proporcionan información pedagógica, generando así la investigación en otras fuentes de conocimiento? A lo largo de este estudio pretendemos escuchar a los principales usuarios de los libros de texto y evaluar su recepción de la DER, optimizando de esta manera una mejor aplicación pedagógica.

Palabras-clave: Tecnologías DER.Educational. Los Libros de Texto Escolar. Cosas didácticas.

1 INTRODUCTION

Students' use of Information and Communication Technologies (ICT) in the dynamics of the classroom is currently a reality in the scenery of the Portuguese schools, in spite of the existence of observational studies that indicate discontinuity due to obstacles of varied nature (BECTA, 2004).

However, outside the walls of the school, the picture is different and some facts are observed: as a daily routine, students access diverse sources of information conveyed by the pressure of television, video games and media among others that "). In these digital spaces, the young students are able to filter the information if they have appropriate technologies and new features. And then they teach themselves. Nevertheless, those digital spaces are the areas that researchers have tried to understand concerning how they are propitiated and develop knowledge and how it is managed the learning ability in the digital age, as points out the same author aforementioned. However, this undermines the challenge of learning in the digital age if we do not focus on the possibility of acquiring new skills for young people because of the rapid pace of change(s), to which society is exposed, directs the need to prepare citizens to critically capable of solving problems and with great ability and adaptability to learn autonomously.

Another fact observed in school is that the use of the traditional printed school textbook is being assisted by digital educational resources (DER) which is sometimes supported by digital platforms of support. Regarding the traditional functions of the teacher's work, the platform aims to facilitate lesson planning through the access to digital resources already selected by the publishers for a particular year of schooling and interaction with project proposals adopted. In some cases, as well as in classroom situation, the use of multimedia school textbook - school textbook in digital format – is observed, which is supported by an online platform instead of the printed school textbook. These digital platforms were designed by publishers, from 2009/ 2010, to support the promotion of the activities of printed school textbooks, thus facilitating access to the DER.

According to the OECD (Organisation for Economic Cooperation and Development), a DER is "any digital resource that is used by teachers and/ or students for learning" (OCDE, 2007, p.5). The concept of DER has evolved but sometimes it becomes associated with different designations. However, in the scientific literature, the DER is conceived as a smart object (GIBBONS, NELSON & RICHARDS, 2000), the object of knowledge (MERRILL, 2001) and/ or as an object of e-learning (COLLIER & ROBSON, 2001).

Nowadays, the most popular concept is the object of Learning ('learning objects'), brought about by the IEEE, an organization that designates it as "any entity, digital or non-digital, which can be used for education, learning and training "(LOM, 2002).

In Portugal, since 2009/ 2010, primary and secondary projects (school textbooks), are representative of this digital challenge that embody a (re)configuration process of the acquisition of knowledge (students) as well as methods and strategies outlined by teachers.

2 THE DER AND THE PEDAGOGICAL ACTOR

In short, this new generation, that Prensky (2001) calls as 'Digital Natives', because they are skilled in handling digital information, and (Veen 2008) designates as 'Homo Zappiens', because they are constantly connected to the Internet, reflect the skills of young students, their preferences and skills in handling DER, which they access as daily routines (mobile phone, ipad, mp4). For them, the Internet and computers are a natural environment and something that is familiar to them. Therefore, the school textbook, besides being a companion of learning, must reflect this new reality. But for that, we need to access the students' opinion about their school textbook.

On the opposite side, the generation of teachers is nicknamed by Prensky (2001) as 'Digital Immigrants', which refers their technological competencies while reveals part of the educational reality.

At the same time, and at the level of school paper textbooks in the traditional format, Peacock and Cleghorn (2008) point out that school textbooks and other materials used by teachers and students in the teaching-learning process are critical to the effectiveness of the teaching-learning but should be seen with some caution because, considering them alone, they are not the solution to all the educational problems. And even when teachers relate in outburst, "if only we had better resources" (textbooks and/ or further investigation / written resources), while foreseeing the possibility of young people become more motivated, we could most probably approach the 100% digital literacy target. But this "literacy myth" described by Graff (1979), Olson (1990) and Street (2001), which assumes that if we were all literate, we would have a better world and improve the quality of education. However, this is a mere hypothesis because in the educational world, the reality is a social, didactic and a pedagogical construction and research is crucial to the progress of knowledge.

The purpose of this paper

The starting point of this study is to make a reflection on the assessment made by the students about the DER of the school textbook of Portuguese (12th grade) and to understand the ways of use, their potential and inherent organization related to the practice of teaching. Thus, we developed an investigation with three main guiding goals: the first was to conduct a formative evaluation of the DER adopted in a school textbook of Portuguese (12th grade) by students and teachers, the second is to understand what role they play in the construction of the students' school knowledge and the third is to deepen the knowledge available on the teaching and learning process.

Supported on the referee of the theory of constructivism and in line with Hummel (1988), Ausubel (1980), Beans and Apple (1995), among the set of authors as references that could be named, we assume the student as the central element of the lifelong learning process. We consider crucial to provide cognitive, stimulating, challenging learning environments that motivate the student to learn.

So, we share with Figueiredo (2002), the possibility that the focus of learning, in future times, be situated on learning contexts. This author posits that the smart use of technology can provide the creation of learning environments, riches in interaction, activity and culture(s). Other authors who stress the importance of (s) learning context (s), which in our case is realized by the use of DER, are Dewey (1899), Piaget (1947), Vygotsky (1978), Lave and Wenger (1991) , Figueiredo and Afonso (2005).

This study, situated in the field of school textbooks research, reveals a reality that is supported by reference literature/ researches disseminated (DEVELAY, 2007; SIKOROVA, (2011), because, despite the changes(s) of paradigm(s) in education, the school textbook still "largely determines what happens in the classroom" (HUMMEL, 1988). Therefore, despite the contribution of the theory of constructivism, especially feeding a perspective which refers to the responsibility of the teacher to create strategies for building knowledge, this communication stresses the student (s) point of view. In the universe of research, this aspect is a differentiator factor because it gives "meaning to praxis" at the level of work with the school textbook (DUARTE, 2008) and the evaluation of the DER.

As a final appointment, the authors of this communication appear in the double facet of professors and researchers giving their contribution to uncover the students' points of view for whom, in fact, multimedia school textbooks are designed and the DER that integrate those projects.

3 RESOURCES

3.1 Digital educational resources - The school textbook: New challenges

The concept of DER is abundant in the scientific literature and their different designations are related to the characteristics and/ or related to their potential for use in different contexts.

At this point we present a descriptive analysis of DER that integrate the school textbook of Portuguese (12th year), thereby justifying this communication and the work presented here.

The school textbook or "project" under review (12th year) includes a set of digital resources that refer to multimedia content, including videos, animations, games, interactive quizzes, links to online documentaries, movies, museums, articles of interest today, paintings, reproductions and/ or illustrations known, with the intention of teaching and raise the students' motivation.

These DER are integrated in this school textbook as a supporting to the work of the teacher and craft of the student. Regarding the teacher's work, the DER was designed to enable the promotion of activities / in class and the preparation of learning sequences in the school textbooks. For students, the DER function as a complement to learning. Access to DER can be done from a CD-ROM or online. As for access, this is realized from a double entry, one for students and one for teachers, from the Internet.

The diversification of activities through videos, animations, activities, games, quizzes, Web links, among others, provides access to interactive content, integrated with the school textbook paper-based and designed for use in the classroom, enhancing the use of interactive whiteboards.

Furthermore there are formative proposals for the evaluation for students, which allows the access to a bank of interactive tests for use in class or at home, with automatic correction, which generates evaluation reports or evaluation games that allow students to practice and test the knowledge of the discipline, without neglecting the entertainment component.

Finally, we provide access to a school textbook that articulates the multimedia textbook in digital format with multiple multimedia support. Thus we consider that knowledge is a construction that holds a constructive perspective.

4 METHODOLOGY

This paper presents a qualitative approach and was held in secondary schools in the region so-called" Grande Lisboa" with a sample of 91 students of the 12th grade and 7 teachers, who worked with the school textbook during the school year 2012/2013.

Data collection instrument was a questionnaire to evaluate and verify the DER' reception by students and their teachers, thus optimizing a better pedagogical implementation of the learning-teaching process. This questionnaire structure is based on questions of different types, that were subjected to content analysis technique. All data collected will provide the fundamental support in the analysis and interpretation of the facts.

Taking into account the guidelines of the *American Educational Research Association* (2010), with regard to confidentiality and anonymity of participants, these criteria were followed by ethical procedures for determining the confidentiality and privacy of the participants, which included coding.

5 RESULTS - PRESENTATION AND ANALYSIS

The questionnaire comprises a total of sixteen items. In the gender distribution of our sample of 91 students, there was 36% of elements female and 64% male gender. Regarding the types of questions, the instrument integrates modalities: items of agreement and multiple choice. Immediately, we present the conclusions of this investigation.

Tabela 1 - Question 1

Questions/ Sub-Questions	STUDENTS	TEACHERS
Does the use of DER promotes proactive behavior?	- Generates proactive behavior (24%); - 'Stimulates autonomy' (16%);	- Enables, deeper researches (29%); - Allows the systematization of learning '(29%);

1.1. Are the DER suited to the development of the different know-how of the discipline?	- Level 'Average' (70%) - Level 'Good' (22%);	- Level 'Average' (57%); - Level 'Good' (29%);

Tabela 2 - Question 2

Questions/ Sub-Questions	STUDENTS	TEACHERS
Do DER promote the consolidation / systematization of student learning?	- Allow the systematization of learning' (20%), - Develop creativity (15%);	- Develops creativity (28%); - Generates proactive behavior (14%);
2.1. Is the scientific rigor suited/ adapted to the characteristics and/ or profile of the public?	- Yes (82%); - No (18%);	- Yes (57%); - No (43%);
2.2. Does the school textbook explain the essential of learning?	- Level 'Average' (53%), - Level 'Good' (42%) -	- Level 'Average' (71%), - Level 'Good' (29%);
2.3. Does the school textbook motivate the student to learn?	- Level 'Average' (43%), - Level 'Good' (36%);	- Level 'Average' (72%), - Level 'Good' (28%);

Tabela 3 - Question 3

Questions/ Sub-Questions	STUDENTS	TEACHERS
Do the DER provide information of quality and motivates to pedagogical researches in other sources of knowledge?	- Level 'Average' (41%) - Level 'Good' (39%);	- Level 'Average' (61%) - Level 'Good' (29%);
3.1. How do you evaluate the conception underlying the DER?	- Yes (82%); - No (18%);	- Level 'Good' (71%); - Level 'Average' (29%),

Tabela 4 - Question 4

Questions/ Sub-Questions	STUDENTS	TEACHERS
To what extent are the DER precursors of innovative ways for the building of knowledge?		
4.1. Do the features of this DER school textbook stimulate the search in other sources of knowledge/ other learning materials?	- Level 'Good' (50%); - Level 'Average' (39%);	- Level 'Average' (84%); - Level 'Good' (14%);
4.2. Are the digital resources related to the contents of the syllabus?	- Level 'Satisfactory' (43%); - 'Do not use' (26%);	- Level 'Very little or nothing' (72%); - 'From satisfactorily (14%);

Fonte: Elaborada pela autora

Tabela 5 - Question 5

Questions/ Sub-Questions	STUDENTS	TEACHERS
How do you evaluate this school multimedia textbook?	- Level 'Average' (53%); -Level 'Good' (21%);	- Level 'Average' (71%); - Level 'Good' (19%);
5.1. How do you evaluate the quality of the DER offered by your school textbook?	- Level 'Average' (73%), - Level 'Good' (20%);	- Level 'Average' (57%), - Level 'Good' (43%);
5.2. Does the design and graphic organization of the school textbook facilitate its use and motivate students for learning, including DER.	- Yes (93%); - No (7%);	- Yes (71%); - No (29%);
5.3. How do you evaluate the inclusion of the DER in this school textbook?	- Functional and practice (64%); - Accessory (13%).	- Functional (40%); - Educational (20%); - Attractive (20%); - Sparable (20%).

Fonte: Elaborada pela autora

6 CONCLUSIONS

Considering an evaluation of the DER included in this school textbook, these levels had positive percentage level of its mechanical design but need revision/ rewriting in terms of design - interactivity - and reflective creativity.

Regarding our sample of teachers, the results suggest that the didactic transposition

(CHEVALLARDS, 2005,p.45) which is "an object of knowledge to be taught in teaching object", has not been consistent in the design of these DER included in the school textbook.

Finally, inspired by the SWOT technique (Strength, Weakness, Opportunities and Threats), here we present a set of issues that the sample consider as relevant - Table 1 and Table 2.

Tabela 1 – SWOT Analysis: STUDENTS

STRENGTHS	WEAKNESSES	ASPECTS TO IMPROVE	SCHOOL TEXTBOOK'S EVALUATION
- The *design* of the school textbook helps you to use and motivates students to learning; - The inclusion of DER is functional and practical.	- The use of DER does not generate proactive behaviors or encourages autonomy.	-- DER should improve coordination with different knowledge of the discipline; - Quality;	- Evaluation of the school textbook lies between good and reasonable levels.

Fonte: Elaborada pela autora

Tabela 2 – SWOT Analysis: TEACHERS

STRENGTHS	WEAKNESSES	ASPECTS TO IMPROVE	SCHOOL TEXTBOOK'S EVALUATION
- The inclusion of DER is functional and practical; - Transparency in the learning process.	- Liaison with the contents of the syllabus. - Motivation of the students for learning	-The design of the school textbook; - The quality of teaching DER.	- Evaluation of the school textbook lies in reasonable level.

Fonte: Elaborada pela autora

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