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Eric Bruillard, Alessandra Anichini & Georges-Louis Baron (Eds.)

Changing media – changing schools?

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Introduction

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Changing media – changing schools?

In a time of continuous societal and technological change – and of disenchantment with schooling – does the coexistence of printed and digital resources provide potentially new methodologies of teaching and learning in schools? Or does it only increase the resources without changing fundamental practices? How can a variety of formats enhance students' commitment, curiosity, and scientific and critical thinking? How can such formats promote inclusion and differentiation in order to support all learners? Can a combination of printed and digital media reduce substantially the weight of learners' school bags[1]?

This paragraph accompanied the invitation to participate in the 14th IARTEM conference (the International Association for Research on Textbooks and Educational Media), held at the *Lusófona University*, Lisbon, Portugal from 27 to 29 September 2017.

As in previous editions, a day dedicated to doctoral students was organized just before the conference and various keynotes and round tables were held during the conference. For the parallel sessions, nearly 120 papers were presented. The abstract book can still be consulted on the IARTEM website[2]. This allows us to see the wide variety of work themes of the research communities on textbooks and educational media.

In this introduction, we will make a quick mapping of the themes addressed during the conference. We will then explain the process of drafting these acts and briefly present the articles that make up this book.

An overview of the scope of the 14th IARTEM International Conference

Fig. 1 presents a grouping of the themes that were covered during the presentations. *Resource management*, including aspects of textbook regulation (selection, approval, adoption), remains an important theme, as well as analyses of the content of school textbooks (*inside books*): identity issues, minority representation, historical aspects. This content often remains text, with stories and different narrative forms, also integrating images and different *medias*. Beyond the forms of presentation, textbooks and educational resources benefit from the possibilities offered by digital *technology*, with the recurrent question of possible new pedagogies associated with the new technologies used. For several years, the study of textbooks and of the specific educational resources for the disciplines taught in schools (school subjects) has been developing within IARTEM, whether in science, arts, languages, geography or history. More specifically, issues linked with their actual uses inside the classroom, have increasingly become more important, taking into account students' disabilities and teachers' training.

The contributions that make up this book constitute a small part only of the texts that have been presented. This is explained by the process followed for selecting papers for this volume.

[1] https://iartemblog.wordpress.com/conferences/lisbon/

[2] https://iartemblog.files.wordpress.com/2017/09/iartem_2017_abstract_book_v1-4_a4.pdf

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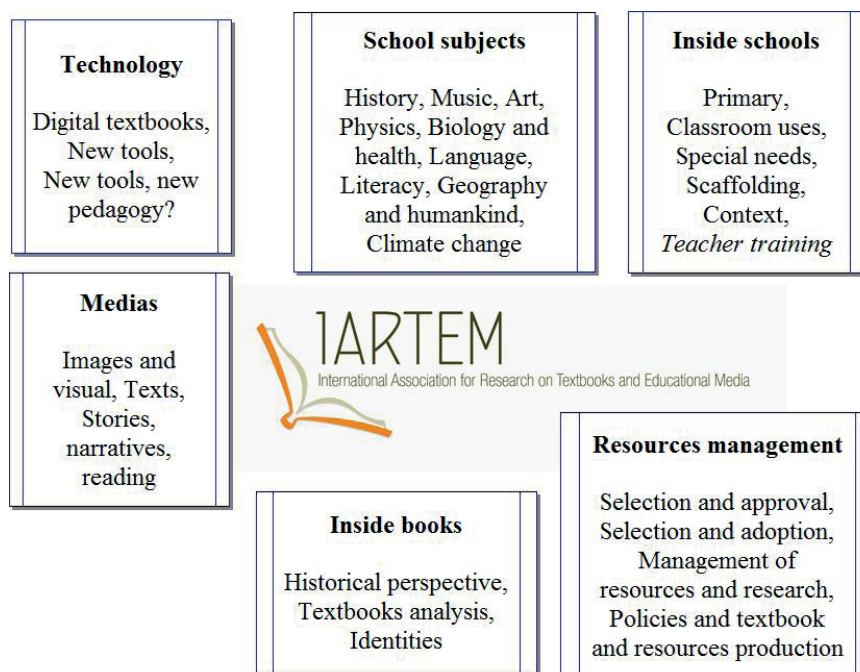
Fig. 1 *Overview of Lisbon IARTEM conference themes* (BRUILLARD, 2017)

A two-step process for the publication of the conference proceedings

Conferences mainly provide an opportunity to present and to discuss work in progress, while other forms of publication (e.g. journals) offer greater recognition for more mature work.

All those who presented a contribution to the Lisbon conference were offered to submit it for the proceedings; we left open the possibility to submit an article for the eJournal or any other publication. Some researchers have published their work in the specific volume celebrating the 25th birthday of IARTEM. In order to have a document of reasonable size, we requested that the texts do not exceed 3500 characters, as longer versions are more suitable for other scientific publications.

Fernando Guimarès has been in charge of the first phase for collecting the proposals. We selected two reviewers for each of them and sent back to the authors the requests for changes and the reviewers' comments. We then collected final proposals and verified that they took into account the reviewers' remarks.

Yvonne Behnke imagined a new design, created a matrix for the proceedings and then took care of bringing them up to state-of-the-art standards.

These successive phases have lasted longer than we expected but made it possible to produce quality proceedings in a format that may be used for other IARTEM publications.

Overall, 28 texts have been selected and have been included in this publication. They offer an interesting window on the current research in the IARTEM domain.

Presentation of the proceedings

We have grouped the texts around five themes.

Part 1: New Textbooks

This first theme does not completely correspond to the technology theme that was presented in the previous section. The proposals explore changes due to the supply and use of digital educational resources, but also other changes (or continuities) concerning textbooks and their uses.

Santana Bonilla and Rodríguez Rodríguez show how different agents (educational authorities, textbook companies, teachers, students, and families) contribute to offers and uses of digital resources. They show differences between 4 types of webportals or platforms: institutional, commercial, teacher networks and web portals not for formal education. Their main question is about a possible change of educational practices associated with the design and use of digital resources.

Haudrey Cordeiro and Tania Garcia investigate the transformations in a literacy textbook (reading and writing) after a new federal public policy of teacher education in Brazil. Some continuities and chang-

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es have been observed, showing that the explicit guidelines provided in the new policy have been taken into account by publishers.

Jana Kubrická describes the background, principles and pitfalls of material design for English for Specific Purpose courses. She tries to outline the main assumptions and strategies applied currently in this domain, and highlights the role of autonomy, the role of technology, and the fact that students´ needs remain at the center of attention.

Nancy Romero analyzes the current uses of educational materials in the classrooms of Argentinian primary schools. Adopting an ethnographic viewpoint, she describes cultural change in classrooms through the use of educational materials and confirms the key role of textbooks, and also other materials. Above all, she highlights the role of teachers who create class contexts based on numerous decisions related to time, space, materials, motivations of children, academic objectives.

Denise Bandeira, Maria Tarran and Eliane Castro describe the design and development of a specific online resource about color theory and its teaching in a university course (training teachers and visual arts professionals). They underline the interesting role of applications and digital tools to teach the theory of the color in the contribution of some learning practices and the development of networks between art courses and the community.

Part 2: Textbooks, media and resources in school subjects. History and science

School subjects are like the skeleton of education: they organize the educational offer. The curricula that are taught and hence what students learn are heavily dependent upon them. Seven papers of these proceedings are devoted to this issue, being case studies on situations occurring in diverse countries.
Aleksandra Ilić Rajković, Mirjana Senić Ružić and Bojan Ljujić first present a case study about how designing and evaluating historical board games. They show that this kind of approach may help students acquiring and revising historical knowledge.

Angerd Eilard then presents a study about cultural stereotypes present in Swedish chemistry textbooks for years 4–5 of primary school. Results show the expression of "reversed gender roles", where men" are portrayed as old and rather primitive in contrast with women depicted as young and modern. However, the author also identifies an underlying symbolic white (ethno-racial) structure, materialized by the numerous depictions of white hands in the iconography.

Felipe Yera Barchi has led a study on an important Brazilian intellectual, João Ribeiro, a well renowned literary critic, who published, at the beginning of the XXth century, textbooks in History, Grammar and Literature, at a time when Brazil was in search of its identity. His main ideas, rather conform to dominant ideas elsewhere, were marked by a sentiment of superiority of the whites, a poor idea of the first European immigrants. Later on, this author changed his views toward more modernist views, but his textbooks kept on circulating for more 30 years after his death.

Osvaldo Rodrigues Júnior interested himself to students following a course on the production of didactic material in a master program on history teaching. His research shows that, if the surveyed teachers said they constantly used textbooks, they also used a diversity of supplementary books, blogs, video-lessons, didactic sequences, and dictionaries etc. Another result is the interest for materials of a para-didactic nature about regional and/or local themes.

Steffen Sammler, has led a study of the history of the development of new educational media in lower Saxony in the 1960s and 1970s, mainly in social studies. His study shows that the high expectations of policy makers, educationalists and media creators regarding the transformative power of the new forms of media appear to have been excessive.

Camila Ferreira Aguiar and Nilson Marcos Dias Garcia, for their part, led an ethnographic work of the relationships between the use of a textbook and the curricular practices of a secondary science teacher in the school environment. They verified the importance of the textbook in the classroom life. They also remarked that the teacher actually based herself on sources that were not registered in her work plan.
Finally, Camille Roux-Goupille presents results from a case study on the way French teachers of biology and geology (curiously a single subject in the French system) design, search, select and use resources in secondary education. She shows how the teachers she observed have a high agentivity, adapting resources to their local conditions, relying on communities of practice to which they contribute.

Part 3: Teachers and textbooks and educational media studies

This Part focuses, in particular, on the relationship between the teachers' activities and textbooks, with reference to various aspects including: teacher training on the use of the textbook as the main teaching

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tool, the processes and criteria for the selection of books carried out by the teachers themselves, their involvement in evaluation of textbooks produced by publishing houses up to initiatives of textbook production. The interventions in question refer to specific institutional contexts and indeed underline the deep link between textbooks and political choices and thereby providing a rich and varied framework that allows us to explore geographically distant realities. Moreover, although the studies in question sometimes deal with areas of investigation dedicated to a specific subject, the results achieved are easily generalizable because they are inherent to wider problems of frame. In this case, talking about Science or Music books allows us to address more general issues related to the use of the textbook by teachers. A significant question emerges that concerns schools and educational institutions as well as other social realities today: it is the difficulty in finding one's way around the amount of digital materials that the Internet makes available today and that require refined instruments of orientation as well as archiving.

László Kojanitz reports the results of a project carried out in recent years in Hungary: a three-year testing process that involved teachers, students and parents in the evaluation of new experimental textbooks and digital materials prepared for the primary and secondary levels. A new Hungarian educational policy foresees a new National Curriculum and the renewal of teaching methodologies, to be implemented also through ICT support. It underlines the importance of the attempt to directly involve teachers in the search for pedagogical innovations at national level.

The article by Magali Loffreda presents an ongoing research that has been conducted in the field of Personal Information Management (PIM), a field of research that is now very useful to schools. The qualitative survey carried out in a high school shows how the organization of teachers' materials plays a very important role in the process of building knowledge.

Vânia Ferreira and María-Carmen Ricoy deal with the theme of teacher training, with particular attention to the use of textbooks and other educational tools. The research focuses specifically on a survey conducted among Music teachers in the third cycle of basic training in Portugal. The conclusions show how teachers' qualifications do not include any training in the use of textbooks. Teachers often train themselves. No attention is paid to a teaching tool that, moreover, in order to be appreciated and well used by students, must first be well known by teachers.

Roseli Borowicc and Tânia Maria Braga Garcia address the issue of the selection of textbooks, in the particular context of schools located in Agrarian Reform Settlements, in southern Brazil. The analysis shows how the presence of different educational proposals creates tensions and highlights the reduction in the autonomy of rural school educators in the choice of textbooks.

Again in the Brazilian context, the work of Edna Luiza de Souza and Nilson Marcos Dias Garcia presents the results of a survey investigating the ways in which science textbooks are used in country schools that have received these materials from the Brazilian National Program of Textbooks (PNLD Field 2016). The results point out that the local culture dimension is absent in textbooks and that teachers use textbooks by adapting and integrating them with other materials.

Part 4: Production of educational resources (including special needs)

This part is dedicated to the Educational resources, as a significant part of the teacher's tools, replacing or integrating the textbook. In this section attention to digital and the opportunities it offers is more evident. The papers here collected are dedicated to this issue, in spite of their diversity, and range from literary reviews to experiences of the use of open digital resources by school classes.

Marta Esplugues Cebrián analyses how didactic materials (Open Educational Resources) produced by Non-Governmental Development Organizations (NGOs) can be used as an optional resource in daily lessons as an alternative to traditional textbooks in subjects such as: citizenship; rights; governance; gender; economic and social sustainability; studies on peace and interculturality.

Self-produced resources are often aimed at meeting particular needs related to specific contexts as well as special educational needs. The study by Carla Vázquez Formoso & Mª Montserrat Castro Rodríguez deals in particular with the analysis of didactic materials and resources developed for the deaf, together with other materials not originally conceived for this group, but which may be useful to facilitate their inclusion in ordinary classes. The study offers a review and classification of the materials in question according to a taxonomic scheme so that they can be accessible to teachers and the community in general for use in the classroom or in society in general.

The paper of Rebeca Fernández and Jesús Rodríguez presents a bibliographic review on teaching materials in Early Childhood Education. Five topics

are identified: a) studies about classroom materials and teacher training and opinions about them, b) studies about digital materials in Early Childhood Education, c) studies about robotics as teaching material in Early Childhood Education, d) studies about toys as teaching material in Early Childhood Education, e) studies about teaching materials and the areas of the curriculum in Galicia at this stage, and f) other studies about teaching materials in Early Childhood Education.

Helenice Ramires Jamur and Glaucia da Silva Brito take into consideration the students' point of view and in particular analyze the way in which the study habits of university students in distance learning may influence the process of digital educational production. The research first results indicate the importance given by the students to the development of cooperative materials, with particular attention to co-authorship and debate on the content produced.

Nicolas Hurst presents a study conducted on a specific sample of textbooks: coursebooks of English language teaching (ELT), Portuguese-produced, written by local authors, generally experienced teachers. The research highlights the importance of this aspect of authorship, which allows us to detect in the books examined an approach to teaching content aimed at promoting language learning, as well as providing support for collaborative learning experiences.

Silvia López Gómez and Jesús Rodríguez try to identify the main lines of research in videogames and education through a review of the international literature, focusing on work published since 2010. They confirmed that the relationship between videogames and potential behavioral effects, such as aggression, was widely studied, as were the cognitive effects on users such as motivation, attention and problem-solving. Recent lines of research include the effects of videogames on students with functional diversity, the use of videogames to increase physical activity, and the creation of videogames by students themselves.

Part 5: Music and Arts
Music and the arts could be included in Part 2, but even if they are subjects present in the school, they are also included outside the school, sometimes in particular institutions.

The first three contributions are devoted to music. Micheline Gois and Guilherme Romanelli are interested in educational material for children's choir singing. How is the playfulness dimension taken into account? A study of different authors leads to the observation that playfulness is an essential knowledge for the conductor in his/her children's choir teaching practice, but with a lack of didactic material conceived specifically for children's choir conducting.

Xavier Levoin tries to explain the contrast between a very wide "social" injunction to a digital conversion of teaching, and very limited and disparate practices of digital tools and media in music teaching. He concludes that the overall characteristics of the environment of music teaching are more a matter of craftsmanship than of industrialization, leading to a phenomena of industrialization in musical training, rather than of industrialization of musical training itself.

Frederico Pedrosa studies printed and virtual textbooks for Brazilian fie-string- guitars course (violas). Based upon the analysis of a sample according to a list of parameters (presence of the score, of tablature, of rhythmic tablature, of fingering for the left hand and the right hand...), he shows divergences in the ways of writing for the violas nowadays and in the past, but most conserve the traditions of musical conservatories, trying to find the best way to notate relevant techniques for the violas.

Miloš Makovský and Tereza Voštová deal with didactic materials for art education in basic education. According to them, selection of these materials lies entirely within the teachers' authority, among a wide range of officially unapproved texts of different quality and methodology, which do not reflect contemporary visual arts and culture. This observation questions the artistic practices that can develop in the classroom.

Last but not least, Magali Akue explores the ability of a blended creative monitoring system to support a renewed and singular creative cultural knowledge base for design students in which they coproduce resources for themselves and their peers. For that purpose, a specific pedagogical platform has been designed and opened in 2015 and an experiment took place in France during the academic year 2016-2017. The platform faces the issue of balancing contributions without denying the singularity of each contributor's choices.

To conclude

International conferences surely are the best means for strengthening the reflection of a research community, provided something of the ideas that are presented remains visible in some durable form. For

that, institutions capable of maintaining publishing structures are needed, since they are a means to keep track of the evolutions.

Over 25 years, IARTEM has been such an institution, taking the responsibility to analyze and to anticipate evolutions in the field of textbooks and educational resources and federating several sub-communities. Its scope has remained the same, adapting itself to the evolution of technology and keeping a very open view regarding research methods. The 25th birthday IARTEM volume is published at the same moment as these proceedings. Taken together, this reflects the vitality of the research field and its timeliness.

The issues studied in this volume, focusing on the ways new resources and traditional media do evolve and combine for contributing to teacher practice and student learning, are thus in direct connection with the interest manifested as early as 2005 for the IARTEM in Caen (France): Caught into textbooks or lost in the web. At the same time, they also allow to document the spectacular evolution towards the use of digital resources that however do not supersede textbooks. No doubt that the reflections and the results presented here, as a testimony of what the research is producing will lay ground for future research.

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New Textbooks

Does the use of educational digital resources at school provide potentially new methodologies of teaching and learning?

Some preliminary results from Digit@l School Research Project[1]

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Abstract

The production and use in the classroom of educational digital content is a relatively new phenomenon. The study of the introduction of such materials give us the opportunity to know how different agents (educational authorities, textbook companies, teachers, students, and families) contribute to those processes. In this article we present some preliminary results of two studies, developed within a wider research, undertaken to analyze the educational digital content offered by different webs and the views of teachers and students about such materials.

The main question is: Does the use of educational digital resources (EDR) at schools provide potentially new methodologies of teaching and learning, or just increase the resources without changing educational practices? The main features of the EDR analyzed prevent the development of new ways of teaching and learning: subject centeredness, one size learning design, traditional social values orientation, among others. According to teachers the key issue is the methodological framework within EDR are used. Some of them even stated that what is important it is not the number of educational digital resources used but their suitability to educational purposes and students' needs.

Key words: educational digital resources (EDR), educational digital content, ICT, primary education, learning methodology, teaching.

1   Introduction

We begin presenting two recent reviews on educational digital resources and summarizing the main features of the research project in which our paper is embedded. Later on, we expose the purpose of this contribution, present the results that give answer to our main research question, and offer a provisional conclusion.

The design and evaluation of educational digital resources

We will mention just two recent articles on the issue of educational digital resources (El Mhouti, Erradi & Nasseh, 2013; Xie, Di Tosto, Chen & Vongkulluksn, 2018). The design and evaluation of educational digital resources (EDR) are pressing and challenging issues. They warrant an investigation of what exactly are the features that increase the quality of EDR.

The first article aims to evaluate the quality of EDR. In order to fulfil it proposes a number of criteria and recommendations that can guide any teaching tool design. The evaluation instrument proposed includes academic, pedagogical, didactic and technical criteria. Some of the main conclusions of this study were the following:

a) The EDR analyzed are merely electronic versions of traditional courses that will not bring anything special to the learner.

b) Learning with digital resources takes place in a very different context from traditional learning, where human interactions become mediated; in this new environment where the learner finds him/herself alone in front of the machine, the need for educational support is of great importance as most EDR are not based on solid teaching and learning foundations.

c) To create products that meet most of the digital didactic and pedagogical criteria, explanatory work must be led by the pedagogy agents to guide the manipulation of media by the learner and this work must be done at the design stage; any product must be evaluated before putting it at the hands of learners in order to identify deficiencies and make necessary adjustments before implementation.

d) The EDR should entail teaching and learning models in line with the current practices of educational paradigm that emphasizes the active, reflexive and social learning nature. Learners are not recipients of information, but must be seen as active builders of knowledge in the context of a learning community.

According to El Mhouti et al. (2013), all EDR should reflect the learning process that students develop during different activities: "a situation problem which induces an action and a resolution process in which skills are practiced and new knowledge is identified. This action is followed by activities to consolidate learning and everything is accompanied by a formative assessment" (Gilis, Lo Bue & Mélin, n.d. as referenced by El Mhouti, Erradi & Nasseh, 2013).

The second article analyze the review data of 1200 resources produced by a professional development program. In that professional development program, the authors trained and supported teachers in evaluating and selecting EDR with the aid of a scientifically validated rubric. The rubric covered four dimensions: Content, Pedagogy, Standards and Technology, based on the TPAC+S model (Xie & Luthy, 2017). The aim of this second work was to provide a big picture of the quality of currently available products, and to identify the features that characterize quality digital resources. The main conclusion of this study points to the fact that the commonalities among evaluations reviewed in this project suggest that digital resources generally fit into one of three areas of instructional design: individualized instruction, inquiry-based learning and situated learning. The predominance and significance of requests for features that allow users to differentiate instructional material in these ways point to the need for classification and Discovery tools for each of these areas. The findings of this review suggest the need for digital repositories to reflect or make visible how resources fit particular instructional design models (Xie, Di Tosto, Chen & Vongkulluksn, 2018).

The main features of the wider research project

The research project is entitled *Schools in the Digital Society: Analysis and proposals for the development and use of digital educational content – Escuel@ Digit@l* (EDU2015-64593-R) which is part of the National Research, Development and Innovation (R+D+i) Programme (Ministry of Economy and Competitiveness, Government of Spain[2]). It aims to analyze the current state of the production, distribution and use in the classroom of educational digital content for primary education in a sample of three regions of Spain (Canary Islands, Galicia and Valencia).

The initial general hypothesis

The ubiquity of digital technology in its many formats (tablets, smartphones, multimedia, laptops, etc..) has not only penetrated most productive, economic and service sectors in our society, but has also altered the ways of producing, distributing and consuming culture and knowledge. The latter is having a direct impact on traditional cultural industries that package and disseminate information (music, film, media, etc...), and has caused a crisis in the traditional model of production and access to cultural products.

Something similar is beginning to occur with traditional educational materials, such as textbooks, whose oligopoly in the classroom is being challenged and replaced by other technological resources such as interactive whiteboards, laptops and/or tablets that mediate the use of educational digital resources.

The project aims to analyze the impact these new materials, the educational digital resources, have on teaching and learning practices in schools and classrooms. We differentiate five kinds of educational digital resources (Area, 2018):

> *Digital Object*. A digital media o multimedia without an explicit educational function nor a specific curricular scope. A picture of a thermometer can be used in Physics or Health Sciences, and can be included in a conceptual map, a learning activity or an evaluation activity. This is equivalent to the first level of AENOR's Standard UNE-71361:2010.

> *Digital Learning Object (DLO)*. A digital object produced with a short-term educational purpose that requires some action on the part of the student. Use to adopt the shape of isolated activities or exercises. This is similar to the second level of AENOR's Standard.

> *Digital Educational Resources (DER)*. A structured package of digital learning objects designed to facilitate the development of students' experiences around a unit of knowledge or a competence. For example: a lesson, a course, a space for collaborative work in order to develop a project, an environment to create a PLE or student portfolios. These are equivalent to the third or fourth levels of AENOR's Standard: Didactic Sequence and Training Programme, respectively.

> *Resource for Teachers' Use (RTU)*. A combination of digital objects which provide teachers ideas and resources (classroom planning, practical experiences, intervention proposals, publishing spaces as blogs) for training and professional development. This kind of digital object has not its equivalent in AENOR Standard.

> *Apss, Tools and Platforms (ATP)*. Include software with a general purpose and software created for an educational purpose. This kind of digital object can be classified in the first level of AENOR Standard AENOR's Standard (general purpose) or in the second level (educational purpose).

The initial general hypothesis of the wider research project is the following: the transition from printed-based educational materials to digital formats will have very profound effects on the way teachers teach and students learn. Digital materials make it possible for teachers to customize materials to student characteristics and, thus, open the possibility to create more enriching diverse learning environments. In short, educational digital materials articulate new forms of interaction between learners and knowledge.

2   Methodology

The methodology for this research project is mixed. We propose four different studies with different approaches. Each study has its own specific aims, methodology and procedure (see **Tab. 1**).

Study	Specific Aims
Study 1 Analysis of the pedagogical features of a sample of commercial and institutional digital educational platforms and portals, and educational digital resources for Primary Education *(2016–2017)*	1.1 Design and validate an instrument for analyzing digital educational resources for Primary Education. 1.2 Analyze a sample of commercial educational digital platforms as well as institutional portals created by the Education Departments of Canary Island, Galicia and Valencia. 1.3. Analyze a sample of educational digital resources for Primary Education (5th and 6th grades) from the selected platforms. 1.4. Conduct a comparative analysis of the digital platforms and educational digital resources previously studied.
Study 2 Identification of the views of the different agents involved in the design, dissemination and use of educational digital content *(2016–2017)*	2.1 Identify the representations that different educational agents (teachers, students and families) have regarding educational digital resources in primary education. 2.2 Analyze the representations that managers of institutional portals and commercial platforms have regarding the didactic features and market potential of educational digital content in Primary Education.
Study 3 Case studies on the use of educational digital resources in primary schools *(2017–2018)*	Select a sample of schools in the three autonomous communities to carry out case studies on the use of digital content in order to develop a cross-case analysis.
Study 4 Development of a good practices guide for the production, distribution and use of educational digital resources *(2018–2019)*	Develop and publish a guide of good practices with suggestions derived from the research findings.

Tab. 1 *The wider research project: summary of specific studies.* (Authors)

Some results from Study 1

Below we show the main findings from Study 1 (which is already complete). From the analysis of the different webs we arrived at the following findings:

1. We identified four kinds of web: institutional portals set up by an educational administration; teacher networks portals which contain materials elaborated by teachers and managed by different agents; portals not designed for formal education mastered by different agents; and commercial platforms operated by a publishing company. They have different features (see **Tab. 2**).

Institutional Web portals	Commercial Web platforms	Teacher networks Web portals	Web portals not for formal education
set up by an educational administration	operated by a publishing company	mastered by diverse agents (publishing companies, teachers' associations…)	managed by different agents: association, city council, foundation, trade union…
repositories of open access digital educational resources	Restricted access to kind of digital textbook (payment by school or family)	open access to certain resources and restricted to others	open access to all resources
resources produced by the educational administration or by teachers	resources developed by technical teams	resources produced by teachers or developed by technical teams	resources produced by agents with diverse profiles
No unified underlying pedagogical model; each digital resource responds to a different model	Explicit pedagogical model not always responding to an innovative educational approach	No unified underlying pedagogical model; each digital resource responds to a different model	No unified underlying pedagogical model; each digital resource responds to a different model
Some processes for filtering the inclusion of resources		No usual processes for filtering the inclusion of resources	
	Differences between platforms that only commercialize digital resources or also produce printed textbooks		Some focused on specific themes, providing contextualized information; others (more general) address themes not tackled in printed textbooks

Tab. 2 *The four types of web providing educational digital resources.* (Authors)

2. We found that commercial web platforms are different from web portals in several aspects (see **Tab. 3**). Using a metaphor, commercial web platforms can be seen as Large Stores, as El Corte Inglés, Harrods or Macy's, and web portals as street market.

Commercial Web platforms	Web portals
Organized according to an explicit logic	Organized according to an implicit logic or combine various criteria
Contain finished or complete products (i.e.: digital educational resources −DER) usually organized around lessons with the same curricular structure for a subject and a whole school year	Contain mainly discrete elements (digital learning objects −DLO-, resources for teacher use −RTU − and apps-ATP) with different curricular scope and structures which can be combined in different ways and for different purposes
Relatively easy to locate the resource searched for	if you want to find something you have to get used with the portal before

Tab. 3 *Differences between commercial platforms and portals.* (Authors)

Let us summarize. In one hand, the web portals and platforms analyzed use to offer a variety of digital resources: digital textbooks, teaching units, activities, games, videos, apps, computer graphics, teachers' guides, etc. These are addressed mainly to teachers and students. On the other hand, institutional web and teacher network web portals contain many digital materials produced by teachers, and most commercial webs platforms include tools to assist teachers in the design of digital educational resources.

3   The purpose of this contribution

The purpose of this contribution is to offer an initial answer to the following question: Does the use of educational digital resources (EDR) at schools provide potentially new methodologies of teaching and learning, or just increase the resources without changing educational practices?

Educational digital resources and new methodologies

The analysis of a sample of digital resources from the four kinds of web portals and commercial platforms -Study 1- let us highlight that there is a long way to walk because most educational digital resources analyzed do not entails new methodologies.

1. Commercial platforms and portals contain mainly digital resources which are useful for a specific school subject. Few materials entail an integrated or interdisciplinary curriculum approach.
2. Most digital resources do not consider the diversity of students. They use to be not accessible nor flexible for students with special educational needs.
3. The social points of view conveyed by the digital materials are the traditional ones. Still predominates a sexist viewpoint about women. The family model portrayed is the heterosexual associated with reproduction. The images represent mostly white people, predominantly men. The visual references to persons with functional or cultural diversity, or to elder persons are scarce or null.
4. The digital resources offered by portals consists mainly of digital learning objects (DLO). Commercial platforms contain mainly digital educational resources (DER), usually in the form of digitalized enriched traditional textbooks.
5. The materials offered by commercial platforms are usually presented as potentially innovative, however a closer analysis reveals that most of them entails a methodology based on direct instruction.
6. Most EDR are designed to be used off-line, not taking advantage of the huge possibilities of Internet to develop processes of searching, selecting, sorting out and presenting information.

Our research question has a second facet:
Does the use of educational digital resources just increase the resources without changing fundamental practices? Based on the narrative data gathered by interviews to teachers and students -Study 2- we can conclude that the mere presence of EDR in the classrooms will not make any difference in students learning unless there is accompanied by changes in teachers' methodology. According to teachers the key issue is the methodological framework within EDR are used. Some of them even stated that what is important it is not the number of educational digital resources used but their suitability to educational purposes and students' needs.

The views of teachers can be summarized as follows:
1. They consider that the best way to proceed is to use EDR alongside printed and other materials. They reported to use a variety of EDR, generally blending them: web platforms, multimedia materials, videos, pictures, and different kinds of apps.
2. The advantages attributed to EDR by teachers are the following: their flexibility (the possibility to be used for different purpose and many times; to stop, go backwards and forwards...), their accessibility from different devices, the opportunity they give to students to be active, the fact that can contribute to the development of the digital competence (to search information, to create digital content and materials), the possibility for personalization, and for teachers and students to share information with others.
3. According to teachers, the use of EDR can have a positive impact on the processes of attention and motivation, operational and visual memory, logical thinking and reasoning, and computational thinking. However, all depends on the specific material utilized.
4. Among the disadvantages of EDR they mention the following: dependence towards the device, and a negative impact in the processes of reading and writing.
5. The main problems for the use of EDR at schools are: the lack of infrastructure (internet connection), equipment obsolescence, the lack of devices replacement, the fact that the EDR can be useful for one group of students but not for another, the resistance of colleagues, and of some parents who expect their children to work with printed textbooks.
6. Teachers who do not create EDR considered that the possibility of students, families and teachers to be in touch depends on the teaching methodology more than on the digital resources utilized. However, teachers who create EDR are persuaded, by their own experience, that the use of them facilitates and enhance the communication

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with their students, even help some students to overcome their shyness. According to them it also facilitates communication with families.

7. Teachers who create EDR are critical with digital textbook that consist on a digital replica of printed textbooks and demand interactive online EDR. Some of them underlined that what is important it is not the number of digital resources used but the answer to the question: "Do I create and use suitable resources for what I want my students to achieve?" They argue that develop digital materials because do not find EDR suitable to their students' needs. Some of them told they use Project Based Learning and cooperative learning as methodological frameworks.

4   Conclusions

Most educational digital resources analyzed do not entails new methodologies. This first conclusion is coherent with some findings of El Mhouti et. al. (2013). The EDR analyzed in that study were merely electronic versions of traditional courses that will not bring anything special to the learner, and most EDR were not based on solid teaching and learning foundations.

The use of educational digital resources just can increase the resources without changing fundamental practices when teachers continue teaching based on direct instruction. This is our second conclusion. The key issue is the methodological framework within EDR are used. Some teachers stated plainly that what is important it is not the number of educational digital resources used but their suitability to educational purposes and students' needs.

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Permanence and change in literacy textbooks from the 'National Pact for Literacy at the Right Age (PNAIC)'

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Abstract

This article investigates the transformations in a literacy textbook approved in the National Textbook Program (PNLD), after the implementation of the federal public policy of teacher education called National Pact for Literacy in the Right Age (PNAIC). The aim of this research was to verify the permanence and changes in two editions of the same literacy textbook approved in the PNLD in 2013 and 2016. The qualitative research was based on the documentary analysis and used the content analysis to detail and investigate the two literacy textbooks. As the research involved two federal government programs, it is important to note that the PNAIC is a Brazilian federal program aimed at training teachers to improve literacy outcomes in the initial grades. PNLD is a Brazilian federal program for the analysis, selection, purchase and free distribution of textbooks for public school students, which takes place every three years. From the production of empirical data it was possible to analyze the permanence and changes in literacy textbooks in relation to the conception of literacy revealed through theoretical and methodological orientations, besides the activities presented, revealing a proposal based on the study of textual genres, in the systematization of the writing system and in the need to monitor student learning. The concern with the evaluation only appears in the edition presented in the PNLD 2016, citing the guidelines of the PNAIC, as well as its frames of monitoring of the learning

Key words: Textbook. Teacher training. PNAIC.

1   Introduction

Considering the importance of teacher training, after the year 2000, the Ministry of Education of Brazil began to produce a large volume of didactic materials to support and guide teachers. To support teachers in the challenge of literacy, the Ministry structured a federal public policy for the training of literacy teachers at the end of 2012, called the National Pact for Literacy in the Right Age (PNAIC).

 This policy has provided 60 manuals containing theoretical and methodological guidelines on how to develop literacy processes in the first three years of elementary school. In addition to having a specific program for the training of teachers with this material.

 The program articulates with the National Program of Textbooks – PNLD, which evaluates and distributes textbooks for all Basic Education students in the country. The PNAIC encourages teachers to use the books chosen by schools and has also influenced the production of textbooks.

 The research aims to present the articulation between PNLD (2016) and PNAIC (2012), in a case study. The specific objective was to analyse how the PNAIC – National Pact for Literacy in the Right Age, started in 2012, is present in a literacy textbook approved in PNLD 2016, compared to its version of 2013.

 The public notice for participation in PNLD is published one year in advance, so for the 2013 edition, the notice was published in 2012, and for the 2016 edition, the notice was published in 2015. As the PNAIC was started at the end of 2012, the influence could only be perceived in the subsequent edition, that of 2016.

2   Literacy textbooks

The literacy textbook has undergone significant changes when comparing the editions presented to the PNLD. According to ALBUQUERQUE and MORAIS (2011), in the last twenty years, literacy textbooks have undergone theoretical changes, resulting from the implementation of the PNLD, with the distribution of books in public teaching networks, and evaluation of them since 1996. The theoretical changes regarding teaching of reading and writing are linked to the theory of the Psychogenesis of Written Language (FERREIRO; TEBEROSKY, 1986), besides the studies on literacy in SOARES (2017).

Until the 2007 PNLD, students in literacy classes received two textbooks: a literacy textbook that slowly left behind the spelling book structure and texts, and the first volume of the Portuguese language. Beginning with PNLD 2010, 1st year students started to receive a single copy that included the appropriation of Writing Systems as well as social practices.

In this way the PNLD organized literacy textbooks for the first two years of the E.F. and books of the Portuguese Language collection for subsequent years. However, these changes in literacy books have been gradually given to each PNLD.

The PNLD followed the progress of research and studies on literacy. This is because the notice for the submission of textbooks to the Program, as well as the evaluations and elaborations of the guide, were carried out by the Ministry of Education in partnership with the universities that were present in the daily life of the schools and, therefore, of the literacy classes.

The PNLD works like this: The Ministry of Education publishes a public notice with guidelines for publishers who want to present their didactic collections. In this edict there are indications of diagramming and curricular. Afterwards, the books are evaluated, without the disclosure of authors and titles, by experts based on criteria congruent to the public notice published. These same experts produce the book reviews that will compose the PNLD guide. The schools then review the approved books, as well as the book reviews, and choose which books will be adopted. The textbooks chosen must be used for three years by the school. Therefore, the PNLD takes place every three years. The Ministry of Education deals with publishers, buys books and distributes, free of charge, to public schools throughout Brazil. With the implementation of the PNAIC in 2012, teacher training was intensified in the perspective of literacy and social practices, according to Soares (1998), presenting theoretical and methodological strategies to achieve the double objective. In order to do so, he emphasized the need to systematize the Alphabetical Writing System, the use of textual genres from various spheres of communication, day-to-day lucidity, the use of different didactic materials, including textbook, methodological adequacy and evaluation of learning, as an essential monitoring of the entire teaching-learning process.

The research by Cordeiro and Garcia (2016) shows how the two public policies (PNAIC and PNLD) are interconnected and support each other simultaneously. The PNAIC indicates the use of the textbooks and the PNLD Guide 2016 indicates the PNAIC training books.

In this research, the analysis of a textbook that was approved in two subsequent editions (2013 and 2016) is the object of analysis for the first perceptions about the presence of the PNAIC in literacy textbooks.

3   Methodology

For comparison and analysis of literacy activities, the textbook selected was "Porta Aberta: letramento e alfabetização" – 1st year, of authorship Isabella Carpaneda and Angiolina Bragança. This textbook has been approved since PNLD 2007, that is, four consecutive editions in PNLD.

For this study were selected the textbooks approved in PNLD 2013 (2011 edition) and 2016 (2014 edition).

The book of 2013 is divided into three parts:

1st – presents topics related to first name, school and the way to school.

2nd – presents 16 sections, each one referring to a word beginning with the consonant letters, in alphabetical order. The words present the syllabic pattern consonant and vowel, the most common and easy of the Portuguese Language.

3rd – presents 22 sections, each one referring to a word started with a syllabic pattern different from the consonant and vowel, or that presents letters that represent different sounds according to the word.

The texts that accompany the keywords of each section are short, in great majority, belonging to Brazilian folklore. There are several activities of word writing, multiple choice, with syllables, to draw, to circumvent the options, among others.

The book of 2016 is divided into 9 units. Each unit presents two texts (short, long and imagery) for the reading of different textual genres, as well as complementary texts with curiosities about the studied subject.

The activities refer to the writing of words with emphasis on the initial letters, but also presenting different syllabic patterns, different positions of the letters within the words, different sounds that the same letter can express, oral production, written textual production, besides play activities.

The research was supported by the procedures of content analysis (Bardin, 2008). Thus, the following steps were performed:
a) Selection of the materials to be examined.
b) Floating reading.
c) Analytical reading of the two editions of the textbook (guidelines for the teacher and sequences of proposed activities).
c) Elaboration of categories to guide the analysis of materials considering the permanence and changes in the textbooks after PNAIC.
d) Organization and systematization of the results found.
e) Qualitative analysis of the results.

4 Results and data discussion

To analyze the data produced, three categories of analysis were established, considering the frequency of the items, when performing the analytical reading, (guidelines for the teacher and sequences of proposed activities).
1. Senses of Literacy
2. The meaning of texts and textual genres
3. The role of Evaluation

The categories were established based on the information analyzed and the data produced.

About the category 1, "Senses of Literacy", what reimaned was:
a) The idea that literacy must be linked to social practice, that is, real texts that circulate socially.
b) The reflection on the difference between the symbols of writing and other symbols.
c) The emphasis for learning the writing system.
d) The importance of the relationship between letters and sounds for literacy.
e) The constant use of moving letters to support the literacy process.

The continuity of the perspective of literacy related to social practices is endorsed by Magda Soares (2017) when affirming that literacy is not detached from the social. These studies began in 1985 and proved that when literacy is significant, it makes sense, providing reflection on why reading and writing, children have more satisfactory results. However, the same studies pointed to the need to teach systematically in addition to the social practices of the Writing System, so that the children perceive the symbols proper to writing, how it is organized, what the relationships of symbols and sounds according to position of the letters in the words and, to this end, the need to use pedagogical resources, such as moving letters, to understand how writing is built is fundamental.

The observed changes are presented in the following frame.

2013	2016
Decipher the Writing System.	Understand the Writing System.
Highlight phonemic awareness, that is, to perceive sounds individually. Systematic work with sounds and letters.	Highlight phonological awareness, that is, abilities to count letters, compare words, among others. Systematic work with texts, words, syllables, letters and sounds

Tab. 1 *Changes in textbooks – Category Senses of Literacy* (Authors)

The idea of understanding the Writing System expands the concept of deciphering, since the deciphering is directly related to the reading process, being an important step in this learning (Cagliari, 1999). However, in speaking of the comprehension of the Writing System, it is linked to the two simultaneous processes, that is, to understand to write and to read. Thus, the Writing System is considered a Notational System with rules and properties that need to be cognitively reconstructed by the learners so that there is understanding, according Morais (2012, p. 48–49).

Another issue to be highlighted is that in 2013 the emphasis was on phonemic awareness, that is, the perception of individual phoneme sounds. For this, the proposal was based on the systematic work with sounds and letters. As early as 2016, the approach turns to phonological awareness, considering different abilities regarding comparison, counting, word analysis, perceiving regularities and irregularities in relation to sounds, letters and syllables, from texts. This means an increase in phonological skills to be developed in the literacy process.

An example to be observed in the textbook is related to the perception of rhymes in 2013. Already in 2016, it expands to counting letters and syllables, as well as rhymes. This means to understand that the systematization of writing goes beyond the rhymes. According to Morais (2012), all these skills refer to phonological awareness and are essential for the literacy process.

Another factor to emphasize when considering the comprehension of the Writing System is in the presentation of one letter at a time, in the 2013 edition, resembles the booklets of the 1970s. Letters in the alphabet sequence, A to Z, emphasizing common syllables of the Portuguese Language, as consonant followed by vowel, and after, the difficulties such as digraphs and consonant meetings.

In 2013 the textbook presents separate systematizations, as in relation to the letter R. There is systematization of the initial R, intermediate R and RR usage. In 2016 the textbook presents simultaneous systematizations: initial R, R intermediate, use of RR. It thus considers the learning of the Writing System as something global that needs to be seen in a wider context to later make systematizations. The idea is for the learner to think about how the Alphabet Writing System works.

About the category 2, "The meaning of texts and textual genres", what remained was:
a) Emphasis on reading skills that allow text comprehension.
b) Reading and writing activities with purpose.
c) The idea of dialogue with the texts read.
d) Proposals to produce textual genres according to the proposed situation.

The studies of Rojo (2004) and Solé (1998) indicate the importance of developing reading skills so that one can truly understand the text. Reading also needs a systematic teaching, so it is necessary to use the different textual genres that enable the development of reading comprehension.

Like reading, the production of texts is also taught systematically and, considering social practices, it presupposes writing with purpose, aiming at an interlocutor; therefore, the importance of considering the communicative situations.

The observed changes are presented in the following frame.

2013	2016
Speak about the diversity of texts.	Speak about the diversity of textual genres (texts with social function).
To discover, reflect, and build knowledge that students need to read and write.	To observe, understand and use the Alphabetical Writing System, using this knowledge in reading and writing texts.
Seek Reading with understanding.	Reading is understanding.

Tab. 2 *Changes in textbooks – The meaning of texts and textual genres.* (Authors)

Bakhtin (1997) states that we communicate through textual genres. Such an understanding of what textual genres are the texts that circulate socially, expands the proposal to simply use texts. It is another meaning for the concept of text and textual genre.

To observe, to understand and to use the System of writing resigns the idea presented before to discover, to reflect and to construct. It is interesting to note that the principle of USE-REFLECTION-USE is present in the National Curriculum Parameters of 1997. Thus, the 2016 edition reinforces the need to give the apprentice the perception of the language in use, perceiving regularities and conventions.

Another aspect to emphasize is the understanding that to read is to understand, considering that reading is an interactive process between reader and text in search of satisfying the objective that guides reading, according Solé (1998).

An example to highlight is that in 2013 a little poem is used as a pretext to systematize a letter of the Alphabet (C). In 2016 the textual genre "tale" is used for reading, providing a diversity of genres. The textbook 2013 edition only presents little poems and songs, while 2016 edition presents a variety of textual genres.

About the category 3, "The Role of Evaluation", it was possible to observe that:

2013	2016
Evaluation is not mentioned.	The proposal is to: > Evaluate the reading beyond the decipherment of words: read and understand texts. > Evaluate textual production. > Evaluate orality. > Evaluate the learning of the Alphabetical Writing System. > Use frameworks suggested by the PNAIC to monitor learning

Tab. 3 *Changes in textbooks – The Role of Evaluation*. (Authors)

It is noteworthy that there is no mention of monitoring student learning in the teacher manual accompanying the 2013 PNLD textbook. In the 2016 edition, the need for this monitoring is emphasized so that it is possible to plan from the needs of the students. And for this, the mention of the PNAIC is constantly in the teacher's guide. The PNAIC presents orientations about the processes of evaluation in literacy, suggesting monitoring frames for learning.

Resolution n. 7 of December 14, 2010, of the National Education Council, article 32 mentions evaluation as an integral part of the curriculum, considering its procedural nature, in a continuous and diagnostic manner. This presupposes a follow-up of the learning path, in a timely manner, monitoring what each student has learned and what they still need to learn. Albuquerque (2012) affirms that evaluation serves to map students' learning pathways and to verify that teaching strategies are delivering expected learning. This means understanding the evaluation as necessary to resume planning by tailoring it to students' learning needs.

5   Conclusions

The data constructed, based on the careful analysis of the two editions of the textbook "Porta Aberta", allowed to list three categories of analysis: senses of Literacy, the meaning of texts and textual genres and the role of evaluation. These categories allowed us to analyze how the textbook in question presented continuities and changes in relation to the 2016 edition. It is important to remember that the curricular orientation that guides the production of the two editions is the National Curricular Parameters (1997), but that in 2012, with the beginning of the Teacher Training Program, denominated PNAIC, some changes have already been noticed in relation to literacy textbooks. This observation was made following the public notice for the publishers to present their books in the National Textbook Program (PNLD), as well as the analysis of the Teacher Manual accompanying the textbook "Porta Aberta", as well as the activities presented in the student's own book.

The permanence and changes were observed in the categories: meanings of literacy and meaning of texts and textual genres. The continuities are related to the linkage of literacy, emphasizing the systematic teaching of writing, with social practices, a process studied by Soares (1998). These continuities are considered positive, they agree with the post-80 studies that value the approximation between literacy and social practices, based on the diversity of textual genres that circulate in society.

Thus, the comprehension of the function of writing and reading becomes significant, because there is a communicative situation involved in this process. In this way, the comprehension of the function of writing and reading becomes significant, because there is a communicative situation involved in this process.

Regarding the changes observed in the three categories, including the role of evaluation, they can be considered positive as they provide theoretical and methodological advances. By observing the term "understanding" of the writing system, the complexity of the learning of a notational system is attributed to the literacy process, which presupposes to know already established rules of functioning and appropriating these rules, in a gradual way, understanding them, and not through memorization.

In addition, in indicating the need to systematize the writing system, focusing not only letters, but extending to syllables, words and texts, emphasizes the social uses that accompany the literacy process, indicating the work with texts that present communicative situations, instead of false texts, meaningless, without context, that only exist within the school. That is, work with textual genres, according to Bakhtin (1997), which are the texts that circulate socially, is evidenced in the 2016 edition, in consonance with studies that consider the text as a starting point for any linguistic reflection, as indicated by Koch and Elias (2009) and Antunes (2003).

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Another change that broadens the view on literacy is the work with phonological awareness, which aims to perceive similarities and differences between words, analyzing number of letters and syllables, as well as the perception of rhymes, initial, medial and final syllables and other phonological abilities which can be developed to support the literacy process, according to Morais (2012).

In relation to the evaluation process, it is not a change, but a very significant insertion of the conception. The presence of guidelines on the evaluation process of literacy, in a procedural and continuous way, carefully perceiving the progress in student learning, as well as being an instrument for the teacher to decide on the need to resume the teaching of items already taught or to use differentiated strategies for teaching, according to Leal (2003).

These changes observed in the "Porta Aberta" textbook, published in 2016, show the presence of explicit guidelines of the PNAIC, with an emphasis on the understanding of the alphabetic writing system, the use of textual genres and, above all, the importance of constantly evaluating. The observed continuities and changes indicate a new meaning for literacy, in a more dialogic and interactionist perspective, which understands the need of the other for the construction of knowledge, for interaction through oral and written texts, understanding that all this learning is a process, that does not depend on memorization.

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Getting the best of all worlds in classroom materials for tertiary ESP

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Abstract

In this paper the author describes the background, principles and pitfalls of material design for English for Specific Purpose (ESP) courses. Foreign language teaching in the "post-method era" strives for an ambitious format that reflects current trends of autonomous learning, collaborative learning, scaffolding and CLIL, develops creativity and critical thinking while combining traditional and new media. Building on these approaches and incorporating their elements into ESP materials effectively and in a purposeful manner presents a daunting task to the authors. ESP at tertiary level is a domain where the identities of learners (both their language and academic identities) are a powerful instrument that has to be taken into account and developed to maximise learning. The aim of this paper is to offer an insight into the background, starting points and elements of material design in tertiary ESP which draws on research into identity in language learning.

Key words: English for specific purpose, syllabus design, language identity, digital media, scaffolding

1   Introduction

English for specific purposes (ESP) is a type of English Language Teaching (ELT) which is characterised by its emphasis on students´ needs and practical outcomes of teaching (Belcher, 2004). Rather than a methodology or a specific set of materials or techniques ESP is broadly viewed as only an "approach" to teaching (Dudley-Evans & St John, 1998). The primary goal of ESP courses is to prepare students for their profession so the underlying and determining question that teachers of ESP should ask before designing their courses and materials would probably be "What language will my students need in their professional life?". Although as a starting point this question can guide teachers as to the content of the course the question that arises is what principles and methods they should employ. Moreover, with the diverse and ample opportunities that information technology offers, teachers may feel overwhelmed and puzzled as to how to select, structure and adapt these tools in order to create conditions for the best possible learning outcomes. This article attempts to outline some of the options that are available and discusses their relevance and potential for ESP teaching.

2   ESP in the post-method era

In this article we discuss ESP in tertiary education which is nowadays (along with English for Academic Purposes – EAP) a very common method of teaching languages at universities in the Czech Republic due to the gradually improving level of language skills of university students and a greater demand on language teaching that would cater to their specific needs as future scientists, medical professionals, teachers or lawyers. As ESP is not a descriptive methodology it is an area of foreign language teaching that poses specific challenges to teachers. It has been argued that Language for Specific Purpose (LSP) literature has been overly concerned with the content of teaching derived from the declared needs of the students while the methods of teaching have been neglected (Basturkmen, 2012) or reduced to issues of the needs of the market. Belcher (2006) problematizes this content driven, problem-solving approach and considers whose purposes are being served by customising the language for ESP courses. She questions the assumptions that are frequently made about the needs of students and calls for a more reflective, dialogical method of teaching which is based on the ideas of critical pedagogy. In practice such an approach means close cooperation between the teacher and the student

where the roles are equal and supportive rather than hierarchical and power distance is reduced so that students have an opportunity to decide or co-operate on the syllabus and materials. To illustrate this point, students enrolled in an ESP course choose their area of expertise, do their research on a given topic and present it to their peers. In the course of such learning, the students develop not only their language skills, but ideally also their knowledge of the subject. In addition, by setting their own learning goals and organising their learning they become more autonomous learners (Smith, 2003). By involving the students actively as co-managers of an ESP course and drawing on their expertise course we also develop their professional identities.

The issue of professional identities is closely linked with motivation. The motivation to actively participate in a class can be inhibited by a student´s feeling of anxiety or lack of self-confidence. Calling upon students as experts in their field of study can reduce this anxiety and contribute to their well-being in the class (Janks, 1997). Here we take the position of Norton (2000) who argues that language learners and language learning context are intertwined in the sense that it is through language and social meaning of interaction in the language that learners construe their second language identities. Although Norton refers primarily to second language learning in the target language environment, we believe that these identities are created in an ESP classroom too. An example of practice in ESP which develops the identity of a confident language learner is a diary into which students can note down the language and communicative situations they came across while studying for their non-language subjects which is then used as a springboard for discussions and activities in a language class.

3   Technology and ESP

As mentioned above, it is the content objectives that are usually given precedence in ESP. Nevertheless, there are several key approaches to the teaching of EAP that have been adopted in ESP: inductive learning, process syllabuses, learner autonomy, authenticity, technology and team teaching (Watson Todd, 2003). Let us examine technology and its role in ESP in more detail. There are many purposes technology in ESP can serve.

Primarily, the internet is a convenient source of discipline-specific materials that ESP teachers and students can draw on to familiarize themselves with authentic target language contexts. Warschauer, Shetzer, and Meloni (2000) first coined the acronym ALIVE to summarise the significant shift in language learning in the age of the Internet, specifically the concepts of *authenticity, literacy, interaction, vitality,* and *empowerment. Empowerment* in ESP teaching and learning appears to have a special significance as the learners are aspiring to become members of certain professional communities. By accessing technical texts on the Internet they are simultaneously with general language acquiring the knowledge of a specific professional discourse. Furthermore, when exploring discipline-specific sources students can develop their critical thinking skills, e.g. when assessing the reliability of online sources, their genre and register (Barahona & Arnó, 2001).

Online communication such as emailing or video conferencing is another powerful tool for ESP and can be used to teach very specific aspects of professional communication such as registers (Hradilová, 2016). Other authors in this field (e.g. Arno-Macia, 2012) emphasise the importance of setting meaningful tasks that require interaction and simulations of authentic situations.

Next, e-learning materials tailored to the needs of the students can help reinforce their knowledge. Various online tasks can also have the function of scaffolding learning, e.g. vocabulary tasks provided to students before a lesson or other materials that contribute to the flipped classroom where students do their reading before the class and use the face-to-face time in the classroom for discussion or further elaboration on what they have studied at home. Another scaffolding technique in ESP is providing writing templates to students that they can adapt in their own writing. These scaffolds are then gradually removed and students are more challenged.

A phenomenon that emerged recently and has since become an integral part of ESP and EAP courses are language corpora. These databases and the instruments for their analysis have provided us with new insights into the specificities of various genres and discourses (McCarten, 2007). These days ESP students can even create their own corpora selecting the texts they themselves consider relevant for their language learning. These databases and concordance data that they provide serve as a reference when checking collocations, the correct use of terminology, etc. but can also be used for grammar practice, e.g. demonstration of the use of passive

voice in formal texts, both in pre-writing and post-writing stages. The corpora have been identified as an empowering tool (Starfield, 2004) for both teachers and learners as it gives us evidence and statistical data as to what vocabulary and grammar to include in our teaching or learning as it helps identify errors and compare student´s writing with other sources that are considered the "norm". That, however, raises another issue worth discussing with our students, and that is on "whose English" we want to rely – be it the language of scholars from Great Britain, the USA or international writers.

Another learning platform for ESP made possible by the new media are asynchronous forums, such as wikis. These forums have specific features of face-to-face discussions but they also exhibit certain traits of academic writing (Hopkins, 2005). The academic writing trait is mainly associated with the fact that students, when contributing to the forum, can plan their posts and support their statements with arguments that they have had time to consider. At the same time the style of writing includes the dialogic nature of these forums, that is references to other participants´ contributions or questions. Writing a wiki entry in collaboration with others entails a great deal of interactivity, which raises the students´ awareness of target reader, genre and makes them organise their posts more carefully (Kuteeva, 2011). This activity therefore represents a very effective and popular instrument whereby students collaborate on a specialised subject close to their field

of study by doing their research and planning their contribution but at the same time there is a lot of language work involved, particularly in the skills of reading and writing. This activity by focusing mainly on the content is very close to the method of CLIL in which the students learn the content and language in an integrated way.

Overall, information technology provides numerous benefits to ESP teaching as it is becoming increasingly more realistic and authentic in the communities that students are members of in online environments (Arno-Macia, 2012). The aspects that have great potential for ESP are therefore increased motivation of the learners, collaboration, real-life tasks and the development of intercultural competence in more varied online communities. Nevertheless, all of the tools described above can only be effective if the support and guidance of teachers is provided and the tasks are structured and scaffolded to cater for the needs of individual students. Furthermore, teachers need not only to have skills and knowledge of the technology but also strategies for evaluating and adapting it (Warschauer, 2002) to make the best possible use of it. Technology may represent a very attractive instrument, like shiny new textbooks in the past, however, it is the goals of the course that should remain the priority of a teacher. Only then it is possible to combine all the options that are available to "get the best of all worlds".

4   Conclusion

In this paper we have attempted to outline the main assumptions and strategies applied currently in ESP. We have discussed the role of autonomy in ESP and the options for building learner´s confidence, motivation and professional identity in ESP classes. Designing materials in ESP in tertiary education is an area where the expertise of students in the field of study often surpasses the knowledge of the subject by language teachers and it is therefore important that language teachers acknowledge the students as co-operators and co-designers of the syllabus and teaching materials.

We also discussed the role of technology in ESP and pointed out the instruments that are available to teachers to empower their students as language learners and future professionals. We believe that raising students´ awareness of reliable Internet sources or online platforms in which they can ac-

tively participate will foster both their professional growth and their language learning beyond the classroom.

ESP has always had students´ needs at the centre of attention and therefore over the last decades it has embraced and incorporated various tools of ICT that allow greater engagement of students and more extensive use of authentic materials. It is also important to emphasise that declaring the needs of the learner as a priority is philosophically and methodologically a positive starting point for teachers to contemplate the goals, content and methods of their courses, the ICT tools they will use and the tasks and projects that will lead towards achieving those goals. We believe that the concepts of authenticity, interaction and collaboration that are facilitated by ICT will enable ESP teachers maximise the learning outcomes in their classes.

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Cultural change in classrooms through the use of educational materials

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Abstract

This paper analyzes the current uses of educational materials in the classrooms of Argentinian primary schools. Educational materials are essential for the development of a class. Their uses are based on educational intentions that seek to respond to the needs of daily practice, needs that relate the school to other cultural dynamics.

The research strategy consisted of a case study, where field work was carried out in two primary schools of the City of Buenos Aires during 2013 and involved classroom observations, interviews with principals and teachers, and children's focus groups. The results of the study showed that teachers select a variety of materials to teach the same subject. Each material is assigned a function to promote learning (motivate, create, exercise, evaluate). When teachers select materials, they emphasize the participation of children through oral and written words; the expression of emotions; the relationship between knowledge to learn and everyday life.

In this set of practices and contemporary senses, traditions and novelties are combined, giving rise to new pedagogical definitions, including the current place of children in school and the ways in which they learn, how to teach and the textbook as educational material

Key words: Textbook; Primary school; School culture.

1   Introduction

What is the most valuable and relevant knowledge for the future life of students? Which are the learning experiences that students are worth gaining in a cultural context of ceaseless change?

These issues, frequently asked in schools, interpellates their historical function focused on the formation of the national identity, access to literate and printed culture, and the disciplinary organization of knowledge.

These questions challenge the capacity of schools to recreate experiences of cultural transmission relevant to students, participants in a communicational ecosystem that forms multiple and changing identities, which generates new forms of relationships and is illustrated by the growing specialization of knowledge, among other features.

As regards the issue we are dealing with, "Materials Change, School Changes", I can say that the relations between school and the social scope (in a broad term) have been defined by pedagogy in different forms: crisis, decline, alteration, exhaustion, all of them remarking the idea that there has been a certain stability which is presently questioned and that there has been a certainty that is now being resented, and the idea of school has been even rendered meaningless. This analysis perspective on the school leaves little place to the recognition of nuances that comprise changes and permanent dynamics activated by individuals themselves.

In this research, I assume another position in which the study of school dynamics and its multiple relations with the social field takes variations, continuities and ruptures into consideration, that is to say, a way of thinking the present by resorting to the past, analyzing what it is and what it can be, making room for other problems and hypotheses that appear in the school world.

In that sense, the materials used in schools are an opportunity to identify continuities and changes in school culture. Until a few years ago, research found that textbooks were the most frequently used educational materials in schools. Although they continue in force, their uses are varied. On the one hand, they seem to be indispensable for preparing classes, they are used in the planning stage because they offer information and useful resources. Books are the greatest source of consultation for the teacher. On the other hand, its place as a resource for teaching and learning is shared, increasingly, with a heterogeneous set of materials that, although they have not

been thought for the school, become educational through the use that teachers assign them.

Beyond the contexts, in the classrooms there is always an object that functions as a blackboard or its analogue -digital blackboard- desks or tables, maps, sheets, books, tablets, among others. A system of objects supports the development of a class. The choice of each one, their spatial distribution in the classroom, the moment in which they are used, the people who use it, reflect a system of school relations mediated by them.

These objects build the material culture in the school because they are necessary as information supports and "modelers" of school practices (Gonçalves Vidal 2008). A culture that is changing from the entry of new materialities.

In this paper, I expose some results of an empirical research carried out in primary schools of the City of Buenos Aires, Argentina. Through these results, I have come to the conclusion that teachers are generating new teaching practices to respond to the questions asked. These practices are based on trials, on guesswork about the uncertain, and in these tests, educational materials are a key. These changes are associated with digital conversion, which is a novel and extended process that modifies knowledge and school practices with an innovative imprint.

2   Theoretical framework

The aim of the research was to analyze the current practices of use of textbooks in relation to expectations, actions, interactions with other materials and the bonds arising from them, built up by teachers and children from the second cycle of primary level in two schools of the City of Buenos Aires.

I assumed the theoretical perspective of school culture. The *school culture* is defined as a set of norms and school practices produced with different purposes contemplating the schooling objectives of each period and transmitted over time. Different individuals — teachers, children, families — actively participate in its processing creating specific cultures. These ways of doing and thinking exceed the walls of the school and project into social life. This perspective allows to interrogate school practices and the internal functioning of the school to explain processes that are not usually described. For example, how the uses of textbooks are linked to the daily school dynamics, the pedagogical relationship, teaching and learning.

In school culture studies, three aspects stand out for their analysis: continuities and changes, *the role of individuals in the construction of the curriculum and material culture*.

The analysis of continuities and changes in school culture can be applied to the knowledge that is transmitted, the technologies that go through teaching practices, the behavior of teachers and students, the organization of space and time, the materiality of objects, among other dimensions. The relationship between continuity and change of school culture, related to the notions of "school form" and "school grammar", is considered differently according to the researchers: some give more relevance to the permanences and resistances (Vincent, Lahire and Thin, 2001; Tyack and Cuban, 2001) and others emphasize production and change (Julia, 2001; Chervel, 1995; Forquin, 1993); Viñao Frago, 2001). In this investigation, the contributions of those who approach the second position were taken. Therefore, it is recognized that beyond innovations and pedagogical reforms, in the school small daily changes are made that are capable of transforming the interior of the educational system. In this conception, school culture is understood as an invention. That is, the school as a space of socialization is a place where culture is learned and taught, and where a culture of its own is produced and reproduced, called "school culture".

The analysis of the *role of individuals in the construction* of the curriculum allows to recognize that the school is a place of contact of diverse cultures: family, teachers, children. This conception conceives of "consumption" as a set of singular procedures of appropriation, emphasizes productivity and the innovative character of intercultural mixtures (Canclini, 1990). Then, it shows that, instead of a passive consumption of educational materials at school, individuals make original uses of new and old materials, printed and digital.

The analysis of *material culture* composed of textbooks and other objects allows, on the one hand, to describe representations, knowledge and practices and, on the other, conditions school practices defining a specific way of relating to knowledge. Textbooks have been present in the classroom since the beginning of modern education systems, however, throughout history schools have been permeable to some uses and expressions of written language

and resistant to others, so books have been criticized, modified and used in different ways according to the practices and pedagogies of each place and time. Therefore, the study of the materiality of the school, in this case from the textbooks, allows access to the changes that are generated in the daily life of the school in its relationship with contemporary cultures.

In this sense, the school culture is a builder and transmitter of resignified and/or invented practices based on the relationships it establishes with cultural transformations.

3   Methodology

The investigation of school practices requires a qualitative methodology based on an interpretative approach, because it involves the approach of research phenomena in their specific scenarios of events, in a holistic and conceptual manner, in addition to capturing the complexity of social life and recover the presence, role and meaning of the subjects in the development of social processes (Kirk & Miller, 1991).

I carried out the research through a collective case study (Stake, 1995) from an ethnographic viewpoint that would let me emphasize the perspectives of the parties and their bond with the materialities. For this, I selected two cases that were studied intensively.

There is no single school culture isolated from the tensions and contradictions of the external world (Julia, 2001). Each school is different because there are many possible ways to structure school life, therefore for the selection of cases I took into account the theoretical relevance, as they deepen the knowledge on the subject, and empirical, given that the selected cases are relevant in themselves. The choice of cases involved an a priori knowledge of the schools.

For this, I contacted key informants who knew the characteristics of several schools, both private schools and public schools. After these conversations I defined a list of possible schools and established the first contacts to know four schools from which I chose the two cases of research.

The period of time spent in the field involved a whole school year (2013) in two schools (A and B) with different school cultures.

School A: A school culture more attached to a rigid disciplinary logic; more related to books; linked to simultaneous teaching.

School B: A school culture more akin to fluid forms of knowledge flow; more associated with screens in terms of writing supports; that is more prone to one-on-one work and/or group or online work boosting different learning paces.

From a perspective centered in the investigation of the meaning that the actors give to the experience, I selected a variety of procedures that were extended and corrected throughout the research experience (Yin, 1994).

Field work involved interviews with teachers, principals, librarians, educational advisers and digital consultants; observations nonparticipating in classrooms, school library and other spaces inside the school frequented by students, two focus groups of students in each school and the collection and study of more than five hundred photographs in each school.

I conducted in-depth interviews with teachers, principals, coordinators. Also spontaneous interviews with teaching assistants. Through the in-depth individual interviews, I inquired teachers' interpretations of the ways in which they use the texts, the forms used in the teaching of different school disciplines, and other materials they use in teaching. Through the interviews, I accessed information that was difficult to observe, clarify and also expand data from observation. The script of the interviews with teachers and principals was about the following topics:

a) Selection of textbooks and other materials;
b) Use of textbooks and other materials for class planning y
c) Use of textbooks and other materials for teaching classes.

Non-participant observation allowed me to explore, describe and understand the practices in their context, who carried them out and the meanings assigned to them. I observed the teachers and the children in classes of different subjects, in different situations and in interaction with a variety of materials. I conducted two focus groups of students in each of the schools whose purpose was to investigate the senses and perceptions of children in relation to the usual practices of using textbooks as well as the characteristics they adopt in the resolution of tasks in the house and at school. They were made in a conversational and playful way from the manipulation

of textbooks. The internal dynamics of the focus group revealed new aspects of the topic that had not emerged in individual interviews or observations.

The photographic records of student folders and textbooks were a secondary resource for the purpose of documenting and providing complementa-

ry information that was useful when triangulating data collected in interviews and observations.

In the field record, I gathered all the work on a daily basis which served as an instrument of data processing during the research.

4   Results and data discussion

In this paper, I will refer to three common aspects of both school cultures in relation to the uses of materials, although the differences are also described and analyzed in the doctoral thesis (ROMERO, 2016).

The three points are:
1. Relevance of teaching materials,
2. Material selection criteria and
3. Class setups from the use of materials.

Relevance of Teaching Materials

Until a few years ago, research showed, time and again, that the educational materials most frequently used in schools were textbooks. While still valid, their uses are varied and essential as a source of reference for teachers. However, its place as a resource for teaching and learning is increasingly shared with a set of materials that, although not intended for school (videos, apps), become educational through the use assigned by teachers. The accessibility offered by the web is key to be able to use such resources. Teachers "captured" materials from the web and transferred to the classroom. Teachers converts them into educational materials through the mediation of their explanations, questions, reformulations.

The careful observation of the classroom activity allowed me to identify the central place materials occupy to motivate students in the learning process and to deal with the class atmosphere, thus, assuming a leading role in the teaching scene. From the research, we could say there is no teaching situation without materials and at the same time, the combination of the use of several materials in the same class is becoming more and more frequent.

The textbook occupies an important place in these school practices. Their role is not necessarily visible although of great presence beyond the nuances given in each institutional context. The book is a faithful companion to the practices of teachers, often conceived as a guide, support, framing.

The effective and developing presence of gadgets and languages of audiovisual and technological culture in the ways of teaching is an evidence of the

dialogue between school and the cultural changes that questions one of the pillars of school culture: the use of printed material as the only format of material intended for teaching. This process of teacher appropriation of the materials that the technologies offer transforms some important dimensions of education. At the same time, this process updates the use of traditional educational materials with new functions and in combination with the newest ones.

Material Selection Criteria

"What can we do with this in the classroom?" This is the usual question that a teacher makes in front of any resource at hand: from a didactic proposal material or a research paper. The answer is a practice where teachers reshape that resource from the comments they share with their colleagues. This exchange of ideas, proposals and materials nourishes the pedagogical work of teachers.

These are practices of testing, of material exploration, at the same time they are used with students; practices that transform the same material as in the case of YouTube video editing. Behind this way of designing the practice, there appears the concept of "giving your own idea", of inventing "a signature practice".

> I passed the topic "problematic situations" because the students practiced it a lot in the 5th and 6th grades. This year I taught equations, combined calculations. That's why I'm not interested in following the textbook chapter after chapter .. I'm using it alternately and mixing forwards and backwards, **I do not follow the order of the book. I'm going through the chapters and I give the children exercise guides that I put together on my own.**
> Mathematics and Natural Sciences Teacher, School B.

Therefore, choosing which material to use in classrooms depends on the margin of flexibility that enables the teacher to introduce personal variations in the same material or to include it in a sequence of several materials created by the teacher.

Children are essential for the selection of materials performed by teachers. Considering them, teach-

ers select materials based on three fundamental criteria: innovation, individuation and encouragement of study. Teachers choose:

> Materials with an innovative component as long as it is novel and current. We look for the innovative aspect to "surprise" students with proposals and ideas that encourage and motivate them to learn. In this sense, teachers are very concerned about presenting the contents of teaching in an attractive way and they believe they can achieve this through technologies, different resources and activities in which children can express themselves creatively.

We are setting up an immigrant museum with the students. The students are working with documentation, anecdotes and objects of their ancestors. First, they visited the Bicentennial Museum and then I showed them a video of an art installation that I saw in another museum. The kids liked it a lot and started to add ideas to the initial project of the museum.
Language and Social Sciences Teacher, School A.

> Materials that help students to discover and think for themselves. The aim is to promote in the students a process of individuation and strengthen the sense of originality, thus, children can develop their own possibilities and expand their autonomy and critical spirit. In these practices, emotions are an unquestionable component. The ideas of living and "experiencing" related to learning rule over any other criterion. In this search, audiovisual materials and literary readings play a transcendent role because they enable the expression of the inner world through different languages.

We made a short film with the students. I invited a film critic to be interviewed by the students. It's a profession they did not know and it also helped them to think about the film work they had to do. I am interested in the students asking about their own life. They are kids but they are already thinking: "What can I do with my life? Do I continue with my family's work? Do I study something different? Do I become a soccer player? Many students, after filming, told me that they really liked doing the editing.
Language and Social Science Practice Teacher, School A.

> Materials that help studying. Training as a student is a task that lasts as long as schooling. Teaching students to study involves teaching how to organize time to complete homework, to work on attitudes and willingness to study, to develop specific skills for addressing texts. For teachers, in that sense, the textbook is a great ally. Books are conceived as a guarantee of knowledge and are used

primarily to study for exams. Teachers select materials by being attentive to children, trying to grasp the present time they live in, and at once, they consider it important to prepare them for going through school and projecting themselves ahead.

I like to work with Kapelusz's textbook, which although it is quite structured, the part of study technique is very well worked. The topics are very well explained and the children have no doubts.
Language and Social Science Practice Teacher, School B.

These senses are embodied in everyday practices, which in a way differentiated from the past, are composed of the importance of the current words, the actual presence of emotions and knowledge taught in an interesting and attractive way for children. Materials play a central role in this scenario.

Class Setups from the Use of Materials

When a material enters the classroom, it is installed in a warp of school interactions not only connected with relationships among subjects but among them and other elements inherent to the school culture: times, spaces, climates, disciplines, objects. According to the ways in which these interactions are carried out mainly by the teacher, there are three classroom contexts:
a) Communication,
b) Reflective thought and
c) Reflection of the textbook.

a) The classroom as a communication context
These classes are defined by the principle of participation. They are illustrated by their dynamism. Teachers and students live an intense time of action and of agility between one activity and another, marked by the encouraging participation of the children individually or in groups since the "doing" is privileged as a way of learning. Technologies and images are a usual content in the class as they immerse in the communication of knowledge marked by intertextual references and personal experience. The manipulation of different materials is frequent in teaching.

b) The classroom as a context of reflective thought
In these classes, teachers seek to relate the participation of the children, the knowledge to be acquired and everyday life of students. These practices are concerned with the identities of children, appreciation of knowledge, dialogue and civic life skills education. Reading class work and both personal and collective interpretation of diverse texts are ongoing tasks aim-

ing at understanding the explicit and implicit meaning of texts, and even transcending it through inferences, personal evaluations of what is expressed in the text and the use of that meaning in different situations. Printed material, including textbooks and literature books, is often used, although sometimes netbooks and videos are also adopted with a special preparation.

c) The classroom as a reflection of the textbook

The class develops according to what the textbook says. In this sense, the teacher has a very rigid action plan that is replicated in every subject. In general, students do not take part in explanations except when they are asked specific questions.

The activity in class is usually the resolution of questionnaires that expect the exact answer from the book or the copy in the folder of fragments of the textbook that do not require students to take sides. The correction of the activities from the book is a task that takes most of the time of each class period since its objective is that "everyone has the same".

From the assumed theoretical perspective, teachers occupy an active role in the construction of school cultures. Their tactical work (De Certeau, 2002) linked to textbooks -cultural objects that condense versions of the prescribed curriculum and that remain in force in the classrooms- reveal the ways in which teachers not only recreate the school knowledge of each discipline but generate different learning contexts.

The teaching performances involve nuances and contradictions ranging from those very committed to their work to those who do not take charge of their role. Both produce culture, there are examples of this in the selected cases.

5   Conclusions

To recap, which are the changes perceived in the classroom? As far as the location of material is concerned:

> Textbooks are essential as a source of reference for teachers.
> In the classroom, textbooks share their place with a diverse set of materials that, while not intended for school, become educational through the use assigned to them by teachers.
> There is no teaching situation without materials and at the same time, the combination of the use of several materials in the same class is becoming more and more frequent.

As regards teachers' material selection criteria:
> Materials tested and recommended by other teachers.
> Materials that can be modified and included in the teacher's proposal.
> Materials that manage to capture children's interest in learning and help them get to know themselves.
> The material is known through its use, meaning that practices become exploratory.

As regards the different forms assumed by the class:
> According to the relationships established in the class among knowledge to be taught, subjects, available material, time and school space, three types of class contexts are recognized: Communication, Reflective thought and Reflection of the textbook.

Materials assume a leading role as an aid to the task of teaching. The selection criteria are strongly associated with capturing the interest of children in learning school content. It seems less and less necessary the process of school assimilation of a material made by specialists (such as textbooks) because it is the teachers themselves who do it.

Teachers define with their selection what new materialities will facilitate the contact of the students with cultural contents: saying what aspects to rescue from the material to teach, what to read, what emphasis to give, how to summarize it, what to observe, what graphics to comment, what exercises to put, how to evaluate, etc., new characteristics of the teaching practice. Materials become "living resources" because they allow different approaches to culture and updated ways to transmit content.

The analysis of the uses of educational materials reveals the continuities and changes in the school culture. On the one hand, the permanence of the textbook and, on the other, the appearance of digital materials that give rise to new school practices of a complex nature. It also highlights the protagonism of children, whose voice is essential for the choice of materials.

Finally, the importance of the knowledge of teachers who, in cultural context of ceaseless change, create class contexts based on numerous decisions related to time, space, materials, motivations of children, academic objectives.

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Study on the theory and the practice of color with the use of online resources

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Abstract

This article depicts aspects of the creation and the development of an online resource (blog and video channel) concerning theory and color teaching and its application in extension courses at UNESPAR – School of Arts of Paraná (Campus II, Curitiba). The purpose of this paper is the use of information and communication technologies (ICT) for training teachers and visual arts professionals in the study of theory and practice of color (Lévy, 1999; Castells, 2000). It was considered demands in this area of art and some hazards in both supply and access applied the continuing education programs. The first stage of this deals with discussion, available technologies tests, online appliances evaluation, and resources due to teaching theory of the color. Among them,

there are multiple platforms available for blogging and WordPress included. (Blood, 2002; Amaral, Recuero e Montardo, 2009; Cruz, 2008). There is this qualitative research carried out in training courses for art teachers and other professionals (teachers' courses 2014-2017), that applies a semi-structured query and meetings due to the use of these resources. It is quoted that the use of applications and digital tools to teach the theory of the color may contribute for some learning practices in art. Such applications provide some exchanges among teachers and students; they also may allow networks between art courses and the community.

Keywords: studies on color; teaching education; information and communication technologies – ICT.

1 Collective Dynamics: study of the color

This article discusses the use of technologies and social networks especially in art tutorship. It also depicts, from a blog, some resources and their applications to ease concepts, systems, and practices mainly due to color phenomenon in tutoring formation programs and in some professional ones. Moreover, this study also deals with the undergraduation education in art at School of Arts of Paraná – State University of Paraná (UNESPAR), Campus Curitiba II, as a support for its Visual Arts Tutoring Program.

Additionally, this research in progress intends to analyze the practices and the experiments concerning chromatic systems and harmonies, in order to motivate digital appliances usage as well as some available programs on network for mobile devices like cell phones and pads. Most of these events were part of extent courses and also were part of arts un-

dergraduates, arts teachers, artists' studies, and so forth, and they have been happening since 2012[1]. Each edition offers theoretical and practical activities, such as scopes creation and different studies on light projection for color settings, along with museum visits and cultural points of Curitiba (PR) which can enhance deeper reflections about visual work and chromatic unities through paintings and some other object images with the use of mobile equipment, digital tools, and simulators.

Between the years of 2014 and 2017, from this argument with the participants concerning the course program accessibility and a blog[2] has been developed towards color tutoring[3]. It aims to offer subjects online for the attendants' activities and to offer documentary equipment such illustrations, animations, video and photographic index. Currently,

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[1] The course about color phenomenon was promoted in 2012 by Maria Laila Tarran as a extent project concerning undergraduates in art and teachers of art, and other professionals. Such a project has also the cooperation of Denise Bandeira and Eliane Castro. This course has already had different editions, different programs as well as different duration.

[2] https://estudodacor.wordpress.com

[3] Blog on concepts of the color theory promoted by the group since 2014. Available in <https://estudodacor.wordpress.com/>

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whenever, the understanding of educational process also relies on facing post-modernity conditions and their consistent adjustments in this industrialized output way of industrialized societies.

Although some scholars prefer different names[4] for post-modernism such as "delayed capitalism" or "fluid modernity", this post-modernity has not come out from historical leakage or from a radical transformation, since this is due to a set of changes down in the core of modern government, economical and political organizations which gradually reach the social institutions, as testified by Cazelotto: "By all means, post modernity is related to the birth of the daily computerization, as well as to the electronic forms of communication".[5] (2007, p. 9).

Well, social processes of computerization have grown from the 1970's, and the Internet was linked to the military usage only. In the 1980's, with the end of the Cold War, this network amplified, so did the unlimited growing of computer. According to Lévy, during those past years, cyber culture has spread all over: the interconnection, the virtual uprising of communities, and a collective intelligence (1999, p.127).

Currently, digital networks and a large number of technological mobile devices would give support to social and practical changes in many ways: political disposal, daily life, displacement habits, different other ways of acting, providing and using information. These networks, too, focus on the contemporary culture, on arts and on education.

In consonance with Cauquelin (2005, p. 57), this task of studying the principles of communication in action would be very significant somehow in art and in education. This writer also sets that, in the contemporary art, one can check the supremacy of communication and its different processes. She has also pointed out that such processes are ultimate meaningful for this art system formation and for its rules. Such a statement stressing the real importance of communication towards the contemporary art, and it's considered, not only changes in productive mechanisms, distribution and consumption, but also the technological use and its expansion which have shown these art conditions concerning the public.

In such a data universe formation plays an ultimate role since it is important to learn how to produce, to give out, and to share information until knowledge can be meaningfully broaden by this action of exchanging among schoolmasters and non-academic.

2   Art tutorship: multiple appliances online

The capture of the contemporary art depends, then, on this system recognition, also on their agents' activity, such artists, tutors, and historians; mainly it depends on the relation established with the frantic public who seems to be attracted by different artistic appeal. At this point, and according to Cauquelin (2005), there is a great interest in mediation processes; then the importance of this mediation remains in art tutorship, because this understanding on artistic manifestations has turned to be a critical factor in order to have public and society gathered towards these technologies of information and communication.

Such a proposal intends to report part of the necessary updates concerning art tutoring methodologies before the new technologies came to the scene. In such a case, the use of mobile device programs

for the qualification of art images information has been applied, either towards the information shared among the public with online resources, like communication channels and social media tools as blogs. Besides, it is not difficult to foresee these broaden odds, due to the public access to technologic networks and to the acknowledgement on this color phenomenon and contemporary art mediation.

The theory of the color suits this kind of art tutoring and, since the beginning of the study in biology, physics, chemistry, psychology, in language and in philosophy, color cognition relies on both reflections and on artists' practices. Investigations on color, sight or optical have taken place in research fields.

They are connected with science, technology and society; they have passed through some interventions and carried out towards antagonist terms.

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[4] Mandel, Ernest. *O capitalismo tardio*. São Paulo: Nova Cultural, 1985; Bauman, Zygmunt. *Modernidade líquida*. Rio de Janeiro: Jorge Zahar, 2001.

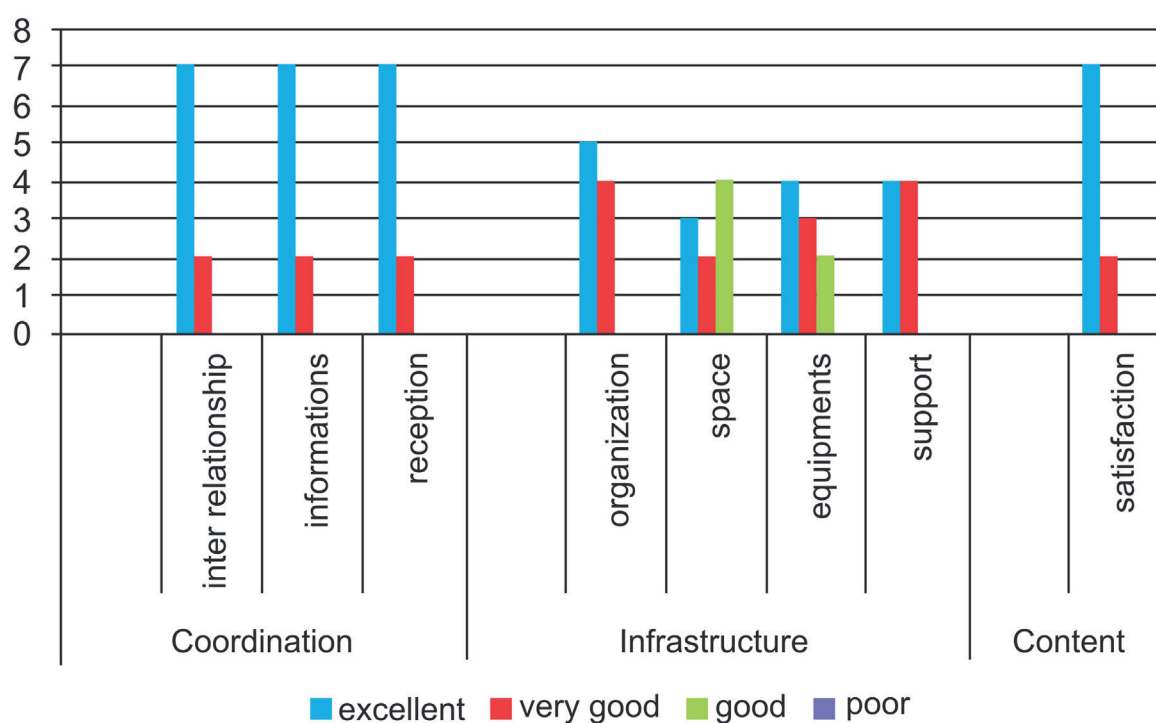[5] Free translation from the original. (N.T.)

Fig. 1 *Answers from participants in the Teacher Training Color Course 2016*
(Authors, *questionnaires applied to the participants*)

Guimarães: "Democrito, Empedocles, Plato, Aristotle, Euclides, Seneca, Plini, Ptolomeus, Pythagoras, Plotinus, and others, started out these investigations in the ancient world".[6] (2000, p. 9) In those artists, scientists, and philosophers' diggings, this sophisticated study of the color passes by pigment issues, optical and cultural codes, along with linguistic contributions, and interdisciplinary approaches.

This blog comes out from researches, in fact, from the teachers' pedagogical and didactic experiment, concerning color studies and the participants' assessment that, during the past editions, have been taken on different forms: from contempt for undergraduate students of art, professionals, and tutors up to working groups with the aid of the Art and Technology Centre at the School of Arts of Paraná (NATFAP).

In the graph below (Fig. 1), data assembles on participants' different expectations are depicted (the amount of responses – vertical axis), along with the alterations of the level of satisfaction (excellent, very good, good, fair – horizontal axis): coordination, infrastructure, and content.

Quest analyzes on assessments of these issues[7] related to frequency and continuity brought forward the necessity of developing some resources and a permanent update of the project due to the lack of a suitable didactic supplement for different groups. From this data, the use of technologies and social network have been chosen to ease the access to the course. Video production and animation, added by blog, regular update and democratization of the material have been privileged.

The introduction of new means of communication and information gives support to recent cultural environments, being able to change social interactions and social structure. Santaella (2005) points out that the new technology roles in art innovation are focused on communication and art influx. Thus, the use of this or that online tool concerning color has been based on surveys and on available resources, access, data storage capacity, users' shares and on social networks. Besides, it was based, either on better readiness and updating possibilities, or mostly on free shares.

In fact, blogs are desirable and skilful disposal tools for arbitrated communication by computer. They deal with various drills with different uses and assumptions. Once the term was brought up back to 1997, quarrels among some Internet communi-

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[6] Free translation from the original. (N.T.)

[7] At the end of each edition, the group posed some questions about the course. Data has been collected in 2015, 2016, and 2017 only.

ties on the growth of the first weblog are on, and according to Blood (2002), a page[8] kept from 1993 to 1996 is considered the forerunner for such a format. Still, during 1999, the interest for that kind of weblog grew exceedingly due to low cost or even free devices and other services for contempt issue: "Such systems have made the issue and the maintenance of sites without requiring the cognition of HTML possible. Thus, they fast turned out to be adopted and adjusted in different situations. Besides, after being set some new comment tools to those blogs it became widely known for the public"[9] (Amaral; Reguero; Montardo, 2009, p. 28).

It is utterly difficult to operate such blog assorts using a unique definition only. So, they can be considered as issue tools with regular dispatches in updated chronological backside positions. The process of this blog for education has depicted different functions; it has been adopted by communities and organizations as communication appliances. In Cruz's opinion (2008) it has made teachers and students utilize them in disciplines and in contempt as they perform an important tool for class activities, either in video and image issues in outcome broadcast, or in different daily school tasks.

However, and according to Amaral, Recuero, and Montardo, blogs are essentially means of communication whose aim is to ease contacts among themselves and the audience. These same blogs could also be understood as cultural devices practiced by users and built by their various motivations and interests. "It is generic the perception of this blog as an appliance, for it aims to incorporate all the use somebody is able to perform and that is classified by several authors as gender".[10] (2009, p. 31)

The option for this very blog came out to be the result of deep analysis of the tools and their necessary functions concerning the content (texts, illustrations, videos, animation, etc.). Discussions on template and the introduction of the menu assumed different structural characteristics of the program recourses like its function, its accessibility, and modern view. The first version of this blog provided at least two possibilities in communication – by e-mail, to contact the users along with the posts issue on You Tube channel that could narrow the exchanges. Likewise, for accounting research by Carvalho:

> E-mail, chat, forum, audio, and videoconference are communication tools and a demand for an educational site. People should be allowed to give their opinions in the forum and, in case of doubt, they should also be allowed to ask for help. On the other hand, however, it is utterly important that the ones who are using the site could talk on the chat, in a certain point. Such an action may also break this kind of isolation on the Web.[11] (2006, p. 62)

In this version of the blog, animation and videos have been brought from scripts by the group of experts. Readiness of usage and development of these resources depend on some controls applied to communicative proceedings, by monitoring actions, moderating activities, or connecting these procedures to digital environment. However, such an appliance turns out to be accurate, since it stands on half present students, reexamination, and ease the content access.

3   Color extended field: queries and capabilities

Operational gauges and disposing environmental assessment concerning blogs assist the evolution of online resources. They serve as parameters whenever applied to instructional sites.

Functioning criteria as well as the available environmental evaluation for blogs aid the resource online development. Additionally, they are like parameters whenever applied on educational sites. Proportions concerning layout and graphic design, informative and interactive functionalities, browser and communication with the addition of other qualifying gauges were some of evaluating elements provided by Carvalho (2006; 2008) who has detected this growing interaction with the users. It has been detached such a tendency to mobile technologies in order to access the information.

Resource online provision in this article has moved those scholars towards the educational tool expands and reviews; most of them were used in undergraduate and in specialization programs. Additionally, the scholars had to deal with some experiments like tools and devices in class concerning the project of the phenomenon of the color. It is necessary to provide a computer menu with page section and

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[8]   The Mosaic's What's New page turned out to be one of the most popular documents on the Internet, and was kept as a communication channel between 1993 and 1996 (Blood, 2002).

[9]   Free translation from the original. (N.T.)

[10]   Free translation from the original. (N.T.)

Fig. 2 *Menu, Additive blending. Source: <https://estudodacor.worpress.com>*

subsection concerning used available templates for the layout (see **Fig. 2**) in the platform environment, with the support of texts and illustrations

Concerning videos, animations and blog included, a channel linked to the same address was taken as the main option to ease the access and to boost communication with the users on social networks. During the last edition of the course in the first term of 2017, the group introduced the blog to the class along with available appliances online for the study of the color, its classifying systems, codes, the chromatic circle and qualifications (hue, saturation, brightness). A visit to a museum, whose show was previously planned[12] by the group, was set. Pieces using elements of proper visual language were provided for discussion on the color, its systems and composition. Again, such a visit favored the approximation among the participants and the artists who had deep analyzes of the color in their work.

Using mobile device, the group had experienced some appliers concerning the color. They should capture images and chromatic keys output and they can be used to set chromatic harmonies. This practice at the museum was a real trigger towards their interest. Additionally, it has made possible the interaction among the participants, the visual language elements of the color and it also broadened information exchange and the communication on social networks.

In the end, it happened that the color tutorship in undergraduate or in specialization programs will be able to deal with various appliances and devices online like the blog. Such tools would allow the participant to interact with the contempt of the discipline; would allow him/her to reexamine, test, and use different concepts about the color, concerning the study of artistic pieces. Besides, the use of tools in mobile devices for different procedures during practical classes, visits and educational actions in show rooms will provide new methodologies for the art tutorship.

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Textbooks, media and resources in school subjects. History and science

Board games and acquiring knowledge of history: research in university teaching[1]

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Abstract

The paper presents a qualitative research in the possibility of using board games as educational media in history teaching. The study included 58 pedagogy students divided in two groups (13 game-designers and 45 evaluators) and a subject teacher. The research was conducted during a course of The History of Schooling in Serbia (Belgrade University). Students were engaged in project-based learning, with the assignment to create board games, to play and evaluate them, and to present their views, through focus groups, on the possibilities of board games application in history teaching. Students-designers pointed out that creating a board game was a challenge that required sophisticated intellectual and emotional engagement, and that they had acquired knowledge of history with understanding and through problem-solving. Students-evaluators argued that the games had helped them in acquiring and revising the knowledge from a new and unusual perspective.

Keywords: Board-games; Project-based learning; History knowledge

1   Introduction

Board game surely implies *action* (specific kind of activity), but it also encompasses the experience of *play* – the unique modality of human experience (Botturi & Loh, 2008). It is a carefully constructed system designed to create a gameplay experience (Hunsucker, 2016), and to make certain content, problems or materials more clear, personal and closer to the players – it is a sort of *autotelic experience* in which a person is completely involved engaging his or her full operational capacities (Csikszentmihalyi, 1999).

In this research, our focus was on examining students' perspective on the possibilities of using board games as educational media in history teaching. Games were used in two ways – creating and playing the created board games. Through focus group sessions we aimed to understand these processes, the difficulties and advantages as well as students' reflections on both creating and playing the games.

2   Theoretical framework

There is a variety of researches dealing with the use of board games in teaching, where it is discussed about the advantages of using games in history teaching (Abramson et al. 2009; Gonzalo, 2016), in construction of cultural memory (Begy, 2015), or as a platform for collaborative learning (Hunsucker, 2016). Being unpredictable and multiply determined by group dynamics, the (learning) outcomes of gameplay are important for all participants, not only for particular individuals (Henricks, 2011). By experiencing freedom while playing, participants can develop self-consciousness, awareness of the social environment and other people within it as well as relationships they engage in with others (Božović,

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2010). Play does not only result from the cultural and societal events. It also represents the source of cultural and societal values (Kajoa, 1979; Huizinga, 1944). Some authors point out that the use of games in teaching positively affects the motivation, engagement and atmosphere in the classroom (Koehler, et al. 2016). Having all that in mind, it is not surprising that some authors state that games use their potential to actively involve the players in the construction of meaning and in the understanding of historical event (Gonzalo, 2016). Our intention was to comprehend the possibilities of the use of board games in history teaching by taking an "inside" look into that process from two aspects – from the perspective of game-designers and from the perspective of those who play the game as a finished product.

In order to observe both perspectives of the process, it was necessary to engage students in a project-based learning (PBL). Projects are complex tasks based on challenging questions. In PBL students are involved in design, problem-solving, decision making or investigative activities; while given the opportunity to work relatively autonomously over extended periods of time, it usually culminates in realistic products (Thomas, 2000). Some of the defining features of PBL include authentic content, authentic assessment, teacher facilitation (but not direction), explicit educational goals, cooperative learning and reflection. All of these features were implemented in this research, since they imply educational interaction among equal participants in joint learning experience within which play and improvisation came to the fore.

2   Methodology

The aim of this research was to explore the potential and to comprehend how the use of board games affects the processes of teaching, learning and acquiring knowledge of history. It is not easy to link experiential learning with the acquisition of knowledge from the past. How can it be possible to experience events that happened a long time ago? In this research we have attempted to examine the possibilities provided by board games on this subject matter.

In order to get the better understanding of the students' perspective on the use of board games and how they affect the processes of teaching and learning, we decided on the qualitative methodology using focus group method. The research was conducted with third year pedagogy students,

during nine weeks of single semester course on the history of schooling in Serbia, at Belgrade University. A group of 13 students created board games using the themes from the course curriculum. The other 45 students were invited to play the games that their colleagues designed. In the end, through focus group sessions, we examined students' perspectives on the process of learning through creating and playing board games for the purpose of acquiring knowledge of history.

In this paper, we will present one segment of the research with the focus on the activities that took place during the research, through three phases – *preparation*, *realization* and *evaluation*; and the students' reflections on the activities, learning process, acquired knowledge and skills.

3   Results and data discussion

The **preparation phase** started with the teacher presenting the assignment and basic principles of board game design. After that, students brainstormed about board games in educational context, using their previously acquired knowledge of pedagogy and psychology. Students' discussion, instead of giving some answers, opened evenmore dilemmas about the given topic. Several commercial games were discussed and played during two weeks period: *Timeline Challenge* (2015), *The Grizzled* (2015), *Freedom* (2012) and *Agricola* (2007).

Students were given the opportunity to work autonomously with freedom to define educational

goals and objectives of their games, to choose the theme, type and mechanism for the games.
Activities of the **planning and realization** phase can be seen through several steps.

Defining educational goals of the games.

Students decided to work in 3 teams and one student worked individually, to create 4 games with different goals: knowledge revision, development of strategic thinking, historical empathy.

Defining the topics of the games.

At the beginning of the project, students started with making an insight into the provided literature for the course. Now, they intensively studied the topics they would present through the games, by approaching the materials in different ways.

For example, the team who decided to make a strategy game focused on understanding the factors that the school's development depends on. In order to make a strategy game, it was not enough just to identify and recognize those factors in the materials they read, but rather to put them in interrelations. A group opting for a game based on historical empathy had a different approach. In the provided literature they only found the topic and key contextual information and focused their attention on the search for additional resources. Here's how one student sums up the previously said:

> *"... It's a very different approach to the material because none of us have taken all the material to read the data in order to memorize the information, but we were thinking about how to put them in the function of the game, and that learning was flowing spontaneously..."*

Developing mechanisms and creating components for the games.

Students, by thinking about this problem, have come to the realization that the educational potential of their games depends on the quality of the mechanism.

> *"...we tried to find some of the key aspects that led to the development of school, such as legislation, textbooks, teachers, and so on, so we listed all that, and then we looked for those pieces of information about the development for each school...."*
> *"...how this game would actually trigger empathy... and we came up with the solution to put players in certain situations, so then it was necessary to decide what these situations would be, what they would do in these situations and in general all this mechanism.."*

Students were faced with the problem of how to construct a mechanism that will simulate real historical situations and events. The term simulation is crucial to understanding those board games that are not using historical content only as a decoration. If a game is an exact reproduction of the system it represents, then it would cease to be a game and become a strict simulation without its ludic dimension. GONZALO (2016) states that two things become necessary in order to make a ludofictional world. First, it is important to establish certain limits related to the way in which we want to represent the reference world (characters, places and specific characteristics of that world). Second, it is necessary to allow an amount of modification within those limits in order to make the *possible world*, and to allow players to be active in the possible world, to be involved in the game and reproduce significant aspects of the events. This is the way the player becomes a part of that world.

Project results – four different board games.

From Mystery to History is a knowledge revision competitive game in which the players should, based on the given information, determine which school the given information relate to. Players draw cards according to color and enter card data on their paper which enables the overview and the possibility to organize and easily memorize the collected information.

Identity is the game with historical empathy as an objective. The story is about the life of civilians in Serbia during the WWI. The game is cooperative; players are in the role of high school students facing a number of situations in which they have to make decisions that may result in a loss of dignity, jeopardy, growth of dignity or safety.

Danilo's game, is a card game for one player led by a game master. A player is in the role of an ordinary man in Serbia at the end of the 19th century, facing a number of different situations in which he should make decisions that determine his life path.

The game *Nastavlenije*[1], is a strategy game in which the players are in the role of the founders of various types of schools that existed in Serbia in the 19th century. In order for one school to develop, it is necessary to satisfy a number of conditions and strategically manage the available resources. Using this game as an example, we will attempt to present its relation to the goals of the History of Schooling in Serbia course. One of the goals is to understand the conditions in which the school system in Serbia has developed. For example, it is necessary to ensure finances, students, teachers, textbooks etc. This game enables students to experience and explore the complexity of schooling. Such experience is the basis for later discussion and analysis of the facts from the schooling history.

In the third **evaluation phase** two game sessions were organized. The games were played by the 45 students who did not participate in their designing. After that, through focus groups (one with students who played games, and the other with students-designers), students presented their views on the

possibilities of the use of board games in history teaching. Observations of the students are grouped around several themes.

Application in the classroom.

Students pointed out that the games could be used as an introduction to a certain topic, for learning something new, for better understanding (of the context), as a revising tool, for evaluation, and for individualized approach; and that board games should not be used too often.

Social relationships in a group, a positive and supportive atmosphere, regardless of the fact whether the game is competitive or cooperative. Game-designers pointed out that in such an atmosphere it was all right to be even criticized, that they were very open to hearing comments evaluating their work, their products. It seems that a change in the field of relationship with other people happened which Božović (2010) also noticed in his observations of developmental role of games and play in human life.

Game as a basis for discussion which starts spontaneously, through action and during the game. The themes that open up depend on the content of the game. These discussions, and the speech in general while playing the games, are a valuable material for further research. Therefore, once more we come to the conclusion that gameplay is about interactive communication and not so much about transactional communication and that fact should be taken into account when launching efforts towards implementing gameplay into the processes of teaching and learning.

The game, the content and learning: the "lived" (experienced) content is revived content. Students have pointed out that the game should not be burdened with information; it should rather provide an experience. The experience is what changes an attitude towards the content, what facilitates the understanding and knowledge acquisition.

The question of durability of knowledge was also raised – what remains after the game. In a strategy game and a game that pursues empathy, the duration is focused on the experience – in the first case of problem situations (making decisions, overcoming and observing causal relationships, etc.); and in the second case an emotional trace (*"Being part of a story"*, *"Being dragged into the context"*).

Game-designers' impressions about the project.

Students pointed out the following as their first impression about the assignment: they were afraid that the task was complicated but challenging; and enthusiastic for being given the opportunity to do something different, interesting and exciting. Although some of them were thinking of giving up, no one did, and most of them were ready for a challenge. They also stated that they have developed three types of skills during this process – social, organizational and skills and abilities to present the knowledge, information or given content through a board game which is a completely new educational medium for them. They pointed out the freedom to be creative, choose the content and plan and organize themselves as they like. We observe this as the confirmation of a statement according to which play supports creativity and productivity during entire lifespan (Lobman & O'Neil, 2011). Students' impressions about game session were mostly positive. They played and enjoyed it. It seems that they experienced the final joy after engaging in unpredictable and pleasantly tense activity, as Huizinga (1944) describes a gameplay. They were very proud of the games they had made and the feedback from the players, and they characterized this activity as a real exchange with their colleagues.

4   Conclusion

Based on the research results and students' reflections, it can be concluded that creating and playing board games have great potentials and should be represented more in history teaching. This conclusion is delivered mostly on the basis of students' perceptions mentioned above.

We recognize the similarity between our findings and the results of some previous researches indicating that playing games leads to creation of

something new, intangible, but certainly noticeable. At this moment we want to stress out the development of self-awareness, familiarity with the social environment, relationships with other people, acquisition of social values and roles, creation of cultural and personal identity (Nikolić, Maksić & Ljujić, 2012). Also, if we compare the formal education and learning with board games and improvisation, where all the participants are "performers" who

develop, teach and learn as a community, students in correspondence with teachers actively participate in the processes of teaching and learning, contributing to the growth and the development of the group in which all of them are learners.

Such playful approach to education gives freedom to all actors in the processes of teaching and learning. Freedom is particularly noticeable in the context of understanding, encouraging and creating new learning and teaching potentials through a collective, collaborative and creative work based on the application of board games. If this freedom is to be productive in terms of development, both students and teachers need to learn about games and play, so these could be appropriately used for learning purposes. Thus, learning *about* games and play is a precondition of learning *through* games and play, which also comes out as an implication of our research.

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Images of the crisis of white patriarchy in swedish primary school textbooks

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Abstract

This paper starts in a textbook evaluation that was carried out by the Swedish Schools Inspectorate in 2010, focusing on fundamental values in Chemistry textbooks used in 14 primary schools, years 4–5. The aim is to further explore the results of the Inspectorate´s analysis, highlighting some cultural identities and discourses in the textbook material, and to discuss them in relation to national values as parts of a Swedish self-image. This is done by means of a mixed discourse analysis and within the field of critical race and whiteness studies, as well as in relation to worldwide social changes, sometimes referred to as the end of patriarchy and the crises of multiculturalism. The first image to be identified in the textbook material, that was the foundation of the evaluation, is a reverse gender hierarchy, where men tend to be subordinated, whereas the second image is an inherent white structure hidden in the textbooks. The study also discusses parts of the material that were not included in the official report.

Keywords: textbooks, primary school, patriarchy, whiteness, discourse analysis

1   Introduction

This paper starts in a textbook analysis that was carried out by the Swedish Schools Inspectorate (2011:1) in 2010, within a quality audit of teaching materials for year 4–5 Chemistry.[1] The purpose is to further explore and discuss the results, with respect to some cultural identities and discourses, that were visible in the textbook material, but also incorporating parts of the material that were not included in the original report.

The observed patterns will first be described in more detail, and then discussed against the background drawn on debates from the past years, concerning identity politics and national values. The findings will also be linked to current Nordic textbook research (eg. Knudsen 2016, 2009; Mikander, 2016; Eilard 2011, 2008) and discussed in relation to worldwide social changes, sometimes referred to as the end of patriarchy (Castells 2010) and the crises of multiculturalism (Lentin & Titley 2011; cf. Ahmed 2007, 2004) with the rise of an extreme right-wing populist culture in the wake (Keskinen 2013).

2   Background

The analysis of the twelve most common textbooks used in the evaluated schools focused on the content of both the school subject in question, according to the syllabus, and fundamental values of the national curriculum. The patterns and perceptions discussed here are the main findings regarding issues of gender and ethnicity/nationality that can be related to the latter.

The content of this paper is also to be regarded as foundation of an up-coming textbook review, outlined as a follow-up study of my doctoral dissertation from 2008 (see Eilard 2008), with aim to scrutinise the corresponding schoolbook field the subsequent decade and in relation to the (new) Swedish curriculum of 2011. The results of my thesis pointed at reversed gender and generation positions in the textbooks and over the period analysed, compared

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[1]   I participated in the quality audit as part of the position that I held at the time (2009-13) as an investigator at the Swedish Schools Inspectorate. The evaluation discussed in this paper focused on both the content and use of textbooks in fourteen primary schools, and was mainly performed by external evaluators. For a more detailed account of the selection process, see Schools Inspectorate 2011:1, Chapter 4, and a list of the teaching materials that were evaluated in Appendix 3.

to traditional ones, although some of the discourses were still largely concealed in everyday life at the time. So were the findings of the School Inspectorate's analysis. Thus, a second purpose of this paper is to pay attention to textbooks as means to detect contemporary blindness and how certain structures around us tend to be easier to visualise and grasp in this way than in everyday life itself.

The intention, however, is not to undertake a systematic analysis, nor to criticise the textbooks or the report evaluating them. Rather the contribution

is to be seen as a critical contemplation of the present times, based in the patterns and perceptions that more or less unintentionally are incorporated in the analysed textbooks and the official evaluation report. Nevertheless, the method used could be described as a mixed discourse analysis, as suggested by Winther Jörgensen & Phillips (2002), while the overall approach has been inspired by the discourse theory of Ernesto Laclau & Chantal Mouffe (ibid; Mikander 2016) which aims to understand society as a continuous discursive (political) struggle.

3   Methodology

As social constructions, textbook texts do not only indicate how things are, but also implicate – or even outline – how things could possibly turn out to be. Thus I consider textbooks as discursive documents of their times, and discourse analysis as a way to make visible discursive structures in textbooks, both as trails of the past and as patterns to come. In this endeavour the textbooks are also regarded as multimodal documents (see eg. Eilard 2008), where the text and illustrations are seen and analysed in interaction, as a whole, and according to the same principles.

Textbooks are framed by the curriculum in about the same way as singular textual events according to Norman Fairclough are seen as parts of discursive as well as social practices at different intertextual and/or societal levels, and within certain orders of discourses (Winther, Jörgensen & Phillips 2002, p. 27). Thus, apart from the above mentioned radical discourse theory of Laclau & Mouffe I mainly also draw on Fairclough's critical discourse analysis that has a similar ambition. A main difference is that Fairclough distinguishes discursive practice from social, while Laclau & Mouffe see it all as discursive practice, but at the same time regard the discourses as

more or less material structures. Consequently the reader is positioned on a mainly discursive level, from where the symbolic patterns and representations expressed and articulated in linguistic and semiotic categories in the texts, are connected to the structures of real life, through chains of (intertextual) associations, exemplifying contemporary (political) debates. Especially, I focus the way certain social categories/subjects are positioned by the discourses in use. At the same time it is necessary to keep in mind that illustrations depicting people in the analysed textbook material that is the foundation of the original evaluation, as well as this paper, are rather sparse and sporadic (see Schools Inspectorate 2011). Further, the result is stemmed from a specific textbook material and certain textbook genre, and the actual combination of textbooks that was used at the time.[2]

The order of discourse(s), or if using Laclau & Mouffe's terminology the "nodal point(s)" (Winther Jörgensen & Phillips 2002, p. 28) around which the deconstructed discourses are organised, that are in focus in the paper, could be identified as "the white patriarchy" and/or separately as "whiteness" and "patriarchy".[3]

4   A reverse order of gender hierarchy in the textbooks

The quality evaluation found that the number of men represented in the textbooks is larger than the number of women. This is a fact that correspond with results from earlier as well as contemporary (Swedish) research and audits. Simultaneously a

qualitative analysis shows a variety of identifications for both men and women that stresses the struggle between old and new discourses highlighted by Laclau & Mouffe. For instance, men are depicted in both traditional male activities, valuing sports,

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[2] Since then, however, it has also been put on trials on later corresponding textbook materials (see Eilard 2018).

[3] This concept/structure became "normalised" after the #metoo-movement, although the paper was originally written and presented just before that, on the IARTEM Conference in Lisbon in September 2017. "White" is here given the meaning of a national Swedish/Scandinavian power order that is in turn embedded within the overarching (post)colonial Western (racial) power order, as will be explained in the continuing descriptions.

action, strength, and so on, as well as contemporary male ideals, such as cooking. Similarly, women are represented in new female careers within science or sport, but also connected to traditional feminine attributes, such as makeup and housewifery.

On the other hand, the qualitative analysis, according to the evaluation report, reflects a shift over time in symbolic power that can be described as a shift of status from male to female bodies/subjects. This also describes the reverse gender hierarchy mentioned earlier, which is symbolically summarised in a couple of illustrations in one of the analysed books. The first one shows the history of scientific progress (Persson 2004, p. 4–5). A number of people from different historical epochs has gathered around an open fire, farthest away in time a Stone Age family and then, after them, three men and two women. At the top – symbolically on the peak of the scientific history – a contemporary woman is depicted who according to the textbook text is a professional nuclear physicist and also mother. After her, we can see Marie Curie, who twice became a Nobel Prize winner. The men who are included on the same picture have all been given historic positions between the top two women and the Stone Age family, as an ancient Greek philosopher, an Arab alchemist and, prior to Marie Curie, an Enlightenment scientist.

On the other illustration, the reader meets a huge primitive looking Stone Age man beside a figure that resembles a modern teenager with darker skin colour than the Stone Age man, and a bicycle (ibid, p. 10–11). In the report this character is described as "a young sporty girl" (Schools Inspectorate 2011:1, p. 26). Regardless of interpretation the point is that this figure has been given both culturally and sexually hybrid features. This kind of representations could – contrary to stereotypes – be seen as open for interpretation and identification.

Thus, the illustrations referred to that also are supported by other corresponding findings, express a structure that could here be regarded as one of the core findings. It is described as a reverse order of gender hierarchy, where "ancient and primitive men" are portrayed against "young and modern women", so that men, according to the evaluation report, appear to be "relegated to the history" (Schools Inspectorate 2011:1, p. 26, 33).

However, men are not only depicted in historical positions and associated to distance in time. Sometimes they are also connected to distant rooms of – according to a Western postcolonial view – apparently remote and "primitive" cultures, as well as professionally to lower status, depicted in less valuable vocations as workers or craftsmen. While men consequently according to the report are seen in antiquated or alienated positions, girls are offered opportunities to identify as modern high status professionals. Apart from being depicted in academic careers, as female scholars or "experts" in various guises, women are also depicted as professional sports women, for example on photographs of famous athletic women. In broad terms, this corresponds to earlier findings of mine (Eilard, 2011; 2008). The main difference compared to those is that men in the earlier studies are not depicted primitive as in the Chemistry books, but rather as soft compared to hegemonic masculinity and quite often as somewhat silly.

5   Traces of a symbolic white structure in the textbooks

In the evaluation report the analysed textbooks are characterised as ethno- or Eurocentric due to the absence of "other ethnicity than Swedish" (Schools Inspectorate 2011:1, p. 26, 39). This means that people who appear in the pictures usually have a Swedish/Western appearance, mainly shown by their pale skin colour. That impression is reinforced by subtle traces of "banal nationalism" (Billing 1993 in Schools Inspectorate 2011:1) in a couple of books. This is demonstrated by means of everyday images/expressions, for example maps, names and flags, that adopt a certain (ethno-)national perspective. Mentally the reader is positioned in a particular geographical – and thus ethno-national – room including its corresponding worldview. In this case the Swedish/Scandinavian room, mediated through pictures showing characteristic nature and landscapes (Hjernquist & Olsson, 1995; Hjernquist, Olsson & Otterståi, 1996). In other books the reader is propelled into a post-colonial hierarchy, linked to certain culture-specific values (cf Mikander 2016). For instance, when the industrialised Northwest intentionally or unintentionally is compared to poor or primitive cultures of the past or present. This creates a postcolonial, albeit maybe today diminishing, view of Sweden as outstanding compared to the other places (ibid).

In addition – and this is the other main finding, which is also the part of the material that was not included in the official report – a recurrent ethnic

Fig. 1 Nettelblad & Ekdahl (2006) *Spektrum kemi*, Liber, p. 108, 291; Parker (1990) *Kul att kunna för unga kemister*, Teknografiska institutet, p. 21 (Illustrations: Kuo Kang Chen/Peter Bull); Hylén, Höglund & Rodhe (1996) *Globen fysik – kemi – teknik*, Gleerups, p. 39 (Illustrations: Marie Söderman); Sjöberg & Öberg (2005) *Puls Grundbok fysik och kemi*, Natur & Kultur, s. 104 (Illustrations: Kenneth Andersson).

marker found in the textbooks is mostly white/colourless or light skin-coloured hands. These hands can be seen in the textbook illustrations as exemplified below, and which mostly illustrate questions relating to Chemistry in daily life, or showing different steps in laboratory exercises.

In the textbooks that I have had access to, I have found far more than a hundred hands and occasional pictures of other body parts such as ears, eyes, mouths, noses, legs and feet, used in a similar way. These body parts mark – consciously or unconsciously – gender and ethnicity/ancestry. For instance there are a few cases of red lips or long red nails that do mark traditionally female attributes compared to the corresponding attributes without make-up. Thus they could be seen symbolising more deliberately included/inclusive constructions. The latter (ethnicity/ancestry) is shown in depicted characters' skin and/or hair colour, and in particular the numerous (white) hands. Hence, these hands must be considered to be more unintentional expressions

of an unconscious – but taken-for-granted – white/Western symbolic structure in the textbook material. As apparent on the illustrations below, the hands are, of course, all somewhat different: some are photographs, others are drawings, in different colours, shades, shapes and sizes, female or male etc. Nevertheless, with few exceptions they could all be characterised as white. Whiteness is inscribed in the Chemistry books through these hands. Thus, using Richard Dyer´s (1997; Eilard 2008; Knudsen 2016, 2009) concept, the hands could be seen as an invisible symbolic structure in the books or as Sara Ahmed (2007, p. 157) puts it: "/.../whiteness could be understood as 'the behind'/.../ We do not face whiteness; it 'trails behind' bodies, as what is assumed to be given. The effect of this 'around whiteness' is the institutionalization of a certain 'likeness', which makes non-white bodies feel uncomfortable, exposed, visible, different/../" Although the hands are numerous, they are hardly visible (at least not for a white person). Thus they can be seen to confirm the

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white domination in the textbooks as well as the invisibility or apparent neutrality of whiteness (Ahmed 2004, 2007; Dyer 2007). The hands are just there, as an underlying (white) structure. The discourse of whiteness is materialised through these hands.

However, the hands also to some extent reflect the sporadic elements of diversity in later books. These few darker hands can be seen as the exceptions that confirm the rule that is the presence of a white structure. This (invisible) symbolic and socially constructed ethno-racial power structure (cf. Knudsen 2016, 2009) is founded in the com-

parison between skin colours, with whiteness as an invisible norm. Thus, bodies or subjects of other shades are automatically, albeit mostly unconsciously, marked and racialised. Coloured subjects are according to Ahmed (2007, p. 164) used as "a happy sign" of diversity, in real life as well as in textbooks, to pretend "that racism has been overcome". As in the case of the gendered (femininely marked) attributes, the hands can in those cases be assumed to be more deliberately included in the textbooks as a conscious strategy of adapting to curriculum requirements, that is showing diversity as a (happy) sign of antiracism.

5 Discourses of the Crisis of White Patriarchy Concealed by Gender Equality and Antiracism

To conclude, the emerging picture in the textbooks does provide a response to the demand of the Swedish curriculum regarding schools responsibility "to counteract traditional gender patterns" (Lgr11 2016, p. 8) by expressing reversed gender roles. This corresponds with the gradual progression of women and girls in different areas of certain contemporary Western societies, notably the area of education, but also to the reverse situation experienced by boys today. Over the past decades, boys have fallen behind in school achievement, and seem to be exposed to a greater extent than girls to negative ideals and anti-school attitudes. Thus, also the thoughts of the Spanish sociologist Manuel Castells (2010) are reflected. At the turn of the Millennium Castells claimed that "the end of patriarchalism" would follow the liberation of women and changed role of the nuclear family in Western cultures. The Stone Age man in one of the Chemistry textbooks can be seen as a symbol of this development and the extreme positioning of men according to certain contemporary discourses of masculinity.

Apart from showing traces of a reversed gender hierarchy, the textbooks – as I have argued above – also comprise a symbolic white (ethno-racial) structure, even as foundation of scarce and superficial yet "politically correct" features of diversity, and not least materialised by the numerous depictions of white hands. This particular dimension, however, was ignored in the evaluation report, probably because of a combination of contemporary blindness and a Swedish self-image characterised by antiracism. After the Second World War national values and identity in Sweden have in addition to strong traditions of democracy and gender equality, been

tied to antiracism (Hübinette 2017). In fact there has been a tendency in Nordic countries and not least Sweden to deny racism in order to protect such national and individual self-images, created by a biased idea that these countries are excluded from colonial guilt (Nicolson, Andreotti & Fortune Mafi 2016; Loftsdóttir 2014).

However, looking back over the past years an ethno-racial (white) structure has increasingly manifested itself more openly, through the emerging new political landscape, locally in Sweden as well as globally, and by the sexist and racist populist language used by certain groups of (white) men who have felt threatened by contemporary discourses, as the above mentioned (Keskinen 2013; Hübinette & Lundström 2011). Castells (2010, p. 301) also warned that "fundamentalist restoration, bringing patriarchalism back under the protection of divine law, may well reverse the process of the undermining of the patriarchal family". This statement announces the crisis of multiculturalism (Lenin & Titley 2011) and the return of the patriarchate in the West that at the time of writing is embodied by President Trump and the rise of the extreme right across Europe. Therefore, the (white) structure in the Chemistry books is easier to distinguish and admit in retrospect today than it was less than a decade ago, when the evaluation report was published. Today it can also be compared to the (sexist) patriarchal structure that was made visible by the worldwide #metoo-movement, but up till then had been concealed by the discourse of gender equality in welfare states like Sweden.

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Searching for Brazilian identity in the 1900s: João Ribeiro and his textbooks

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Abstract

This work analyses the João Ribeiro's textbooks (1860–1934). He wrote textbooks such as *História do Brasil* (History of Brazil) in 1900 and *História Universal* (Universal History) in 1918. In both works, there is a search for Brazil's place in 'civilization'. This concept links his Brazilian history to universal history.

In the beginning of the 20th century, 'Brazil had been created, but it was necessary to invent the Brazilian'. Western Europe provided the model and Ribeiro was a typical man of letters at his time. He was a member of the greatest cultural institutions in the country: College Pedro II, the Brazilian Academy of Letters and the Brazilian History and Geography Institute. He also used to write for a lot of ma-jor journals in Brazil and he traveled a few times to Europe, where he studied painting, law, music, thea-tre, and several languages.

In his narrative, there was a fight between civiliza-tion and barbarism. African and native people were not seen as civilized. However, neither were many Europeans. Ribeiro modified his pessimism about America with a *modernist turn* in the 1920s, but his textbooks did not change and continued to be pub-lished and sold until the 1960s. The identitarian per-spective is focused in this work.

Keywords: João Ribeiro; Brazilian textbooks; National identity; History Teaching

1   Introduction: A brief presentation of Brazil in 1900s

Around the 1900s, Brazil had nearly 20 million in-habitants and around 75% of illiterate people. Great problems were ravaging the country: the issue of health hazards in large cities; small political partici-pation of the majority (only the richest men could vote); the specter of slavery that had left the black population still marginalized without any guarantee of rights; the expansion of European immigration in order to replace slave labor, but also "to launder" the population – practiced since the Second Empire (1840–1889); primary economy based on coffee and rubber exports; and a cultural life that gener-ally despised the non-European as uneducated – the "savagery" represented by the Indians, as well as the African's cultural inferiority. It was necessary "to civ-ilize" the country as European nations.

The intellectual life basically used to turn around the national capital, Rio de Janeiro. Most of the intellectuals were polyvalent, multi-faceted in writ-ing and ordinary affairs. João Ribeiro (1860–1934), for example, was a poet, painter, literary critic, his-torian, translator, philologist, folklorist, teacher and librarian. We can also mention a great poet of that period, Olavo Bilac (1865–1918), who was a chroni-cler, translator, publicist, education inspector, chil-dren's short stories and juvenile novels'writer; or even the greatest name in Brazilian literature, Machado de Assis (1839–1908): chronicler, poet, sto-ryteller, novelist who worked until death in public service.

Public service was the salvation of most literary men at that time. It was not different with João Ribeiro, although he had been an editorial phenom-enon in the didactic segment (writing school text-books of History, Grammar and Literature besides dictionaries and anthologies), he began his career as a secretary of the National Library and later he was a teacher at Pedro II College and at the Federal Drama School.

He was born in Laranjeiras, a small town in Sergipe State, in 1860. He studied medicine in Salvador, but gave up. He went to Rio de Janeiro in 1880 to study engineering, but he only graduated in 1894 in law, when he was already married and with children.

In the 1880s, he worked in newspapers that de-fended the republican and abolitionist causes. At the same time, he continued his work as a teacher and author of textbooks, in 1887 he took a contest for Pedro II College for the Portuguese Language teach-ing, however he was only called three years later for the History teaching. His production of manu-als reveals the same trajectory as the mastership

(teaching), he begans writing grammars and later he started to write History books. In 1892 he launched *Ancient History – East and Greece* in 1900, *History of Brazil* (the most successful of all) and in 1918, *Universal History*.

João Ribeiro's case can be considered an example of how a talent selection and recruitment for the mastership and for the publishing industry in Brazil at the time worked. First, he had to show his intellectual quality and polyvalence in the press, then he took the place he could at Pedro II College, fortuitously, History, and from this institutional locus he started to specialize and write about that subject. He was only invited to participate in the IHGB (Brazilian Institut of History and Geography) in 1914,

when he was already an editorial success with History of Brazil and the circulation of the book was beyond school.

The book Universal History was also a combination of opportunity and talent. With the Great War (1914–1918), the French books that prevailed on Brazilian market due to their cost-benefit ratio became much more expensive with the infeasibility of international trade. It was then that the opportunity for Brazilian authors to begin to write their general or universal histories arose.

This paper analyses how João Ribeiro's contributions to searching and building a national identity for Brazil and and his relation with a new republican regime.

2 Theoretical framework: The communications circuit of Brazilian textbooks in 1900s

In order to analyse the books we should be attentive to the communications circuit purposed by ROBERT DARNTON (1982). The books are not pieces left by the air: "printed books generally pass through roughly the same life cycle. It could be described as a communications circuit that runs from the author to the publisher" (p. 67).

Textbooks also follow a circuit. In the 1900s Brazil, the textbooks were produced mainly by teachers and for teachers – because of exclusive price. In this 'Brazilian old school' teachers were the authorities and the majority of students were male teenagers. Just only 2,5% of inhabitants used to go to school.

The national school syllabus of Brazilian High School were defined by teachers of Pedro II College and they followed the European tradition. This College, at that time, was an institution with peculiar scholar level, something between High School and College today.

All textbooks and all Brazilian schools had to follow Pedro II syllabus and that was the first point of textbooks life cycle. Second, the favorite authors were from Pedro II College and the main publishers were located in Rio de Janeiro.

Pedro II was the greatest educational institution in the country at the end of the nineteenth century and a lot of the state leaders studied or taught there. Pedro II's students probably had money for buying their textbooks, but in small towns and poor regions these textbooks were used only by teachers.

There was an important circulation of men and ideas in Rio de Janeiro and Pedro II College was the institution in charge of forming the ruling the elite of the country.

Within this context, João Ribeiro's textbooks were important means for ideas and the constitution of identities discussions.

3 Methodology: Textbooks as identity documents – the official project and the Ribeiro's version

Considering ALAIN CHOPPIN's functions (2004) to textbooks – *referential, instrumental, ideological-cultural and documentary* – we submit Ribeiro's books to an analysis focused in *referential* and *ideological-cultural* functions.

First of all, the syllabus is important: Ribeiro is not innovative about the topics in his books. The European tradition is remarkable: He says that he follows the main European authors such as Myers, Colby,

Robinson, Fredet and Collier (English); Mallet, Seignobos and Melin (French); and others as Martens, Hommel and Webber.

In his narrative, world history is divided in four ages (Ancient, Medieval, Modern and Contemporary), but it is clear that this division is a curricular imposition. The French model of teaching history is an institutional element, however Ribeiro's building of contents – subjects and chapters – is different.

His universal history is more fluent, less segmented. About the *instrumental* function or how the lessons are designed for students *History of Brazil* (1900) is very innovative. The textbook presents a new layout and new dispositives for learning such as synoptic frame in each chapter. *Universal History* (1918) presents many pictures and maps.

Choppin appoints the *ideological-cultural* function as the older in textbooks analyses. Textbooks have been essential vectors of a nation and its elite class's, language, culture and values since the nineteenth century. Textbooks are a symbol of the national identity as the money and the flag are. In this perspective, we prioritize the contents of the books and how Ribeiro approaches and builds the Brazilian identity in his books.

4   Results and data discussion: Reading Ribeiro's textbooks and national identity

The first version of this book was called "booklet" our "little book" by João Ribeiro and was made for elementary school, but in a few months, it became a success among intellectuals and in bookstores. The book received two other versions on the same year: one for High School and another Academic Version (*Curso Superior*). The latter was the greatest work of João Ribeiro as a historian.

In the book, we can notice the typical concern with the racial element in the late nineteenth and early twentieth centuries. The purely political-administrative approach was not tied to the debates in vogue, and for João Ribeiro, it did not do justice to the history of the country, because "in its features and its own physiognomy, Brazil, what it is, derives from the colonist, the Jesuit and the Mamluk, the action of the Indians and the black slaves "(Ribeiro: 1954, p.21). For him, "our textbooks on homeland history give too much importance to the action of governors and administration" (op. cit., p. 22), and this is what he sought to avoid in his work.

The indigenous people were interpreted as not civilized:

> When it was discovered, Brazil was inhabited by people of the **smallest civilization**; they lived on hunting and fishing, knew no other industrial or war weapons but the bow and the nail, and walked in complete nakedness.
>
> (op. cit., p. 48)

The black people and the European pioneers also received a bad evaluation from J.R. The latter adapting themselves to wildlife. "Portuguese America" was not India, it was impossible to impose a protectorate – "building a society was necessary".

According to the author, at that time the Portugueses prioritized relations with India and the majority of the population willing to emigrate opted for the East. "No one wanted to come to Brazil of their own free will [..] the land was despised and even

poorly seen because the smaller deportation led to Africa, and the larger ones to Brazil" (op. cit., 68). If the portrait of the early settlers is not the most favourable, J.R. makes it clear that when they arrived in Brazil the situation could get worse: "Laws of the metropolis were adopted, but interpreted with liberality, considering prescribed crimes committed beyond the ocean" (op. cit., p. 68).

"Far from civilization," settlers were adapting to wildlife. The lack of white women created unions between Portuguese and Indians, with whom they formed families what contributed to this 'assimilation". "It also facilitated the barbarization of customs by the presence of the African negro, who was soon imported" (op. cit., p. 69).

The miscegenation of the races aggravated Brazil's delay:

> Soon in Brazil, in its capital, as in other settlements, the work of civilization was distorted by the conflict of the races, disguised in democracy, fruit of lust than pity of peninsular people. From the first moment the white, the Indian and the black are confused. The contact of the inferior races with those that are educated, almost always demoralizes and depraves one another. Primarily, however, it depraves the inferiors by the oppression they suffer.
>
> (op cit., p. 93)

To the Catholic Church and to Christianity, in general, there is a complimentary role in JR's narrative, especially to the Jesuits:

> The moral element of this society that flourished by the decomposition of races was Society of Jesus.. The Jesuits were inflexible. They never gave in or granted. They combated all the scandals and evils .. they sought to raise customs and to ennoble the descendants of these men who laid the foundations of the new civilization here.
>
> (op. cit., pp. 98–99)

With the "worst" of Europe, mainly Portugal, and the indigenous and black people, the future of Brazil was not very promising. There was not a "Racial De-

mocracy", says J.R. A combination of lust, laziness, greed, and the absence of moral law condemned Brazil to failure.

The definition of national race is a great issue in his work. Compared to other intellectuals from that period, such as Olavo Bilac (1865–1918) and Afonso Celso (1860–1938), J.R's disbelief is evident. In his narrative, we could not see a republican triumphalism or just a Christian and European civilization's defence. His pessimistic view is a reflection of his skepticism with the Republic of that time.

For his pessimism and skepticism, it is too hard to call Ribeiro's narrative as official from republican regime. He does not honour the republican heroes, there was neither a concern about the building of a cohesive past, nor a triumphant future for Brazil. In sum, Ribeiro is a dissonant voice in First Brazilian republic and national identity is composed of a series of negative elements.

5   Conclusions

At this time there was in Brazil a modernization movement headed by the republicans. The urban renovation of Rio de Janeiro is the most remarkable aspect. Inspired by Haussmann's Paris reform the government intended to create a new capital for a "new civilized country". The Central Avenue opening would take place in 1904, the City Theater in 1909 and the new National Library building in 1910. However, the urban feature of Rio de Janeiro would only get rid of the "work in progress" aspect and gain contours more definitive contours with the Universal Exhibition of the Independence Centenary in 1922.

The painting *Peace and Concorde* painted by Pedro Américo in 1902 can summarize this project of modernization and civilization. In this allegory we see a female representation of Brazilian Republic being received by representatives of "High Civilization" (Europe and USA) in a neoclassic scenario. Angels, Christian cross and Greeks muses complete the scene. The only black character in frame is "the devil of slavery" injured on the floor.

Américo adapts the republican project into an image, which was cohesive narrative showing the Brazilian process of civilization, defecting a shameful past and promising a bright and honourable future.

Ribeiro's narrative is too different of this allegory. He was a genuine intellectual, strict about history and the future nation.

Decades later, in 1920s, Ribeiro changed his pessimism and approached the modernist movement. The year 1922 may be considered the peak of the *Belle Époque Tropical* with a complete metamorphosis of Rio de Janeiro as important capitals in the world – "The Paris of Tropics" – but this year also marks the irruption of the artistic and intellectual movement that flapped it and launched São Paulo as another cultural capital – henceforth in constant

dispute with Rio – the modernism (Schuster, 2014).

Seeking for a more "genuine" expression of the national soul, the modernists attempted to break the typical cosmopolitan aesthetic of the Belle Époque in the visual arts and literature. According to Schuster (2014):

> The adepts of modernism criticized the superficial imitation of foreign models, not only in the political and economic sphere, but above all in art, architecture and literature. Although they formed a very heterogeneous group, the modernists had as their common denominator the resis-tance to the 're-europeanization' of the country.
>
> (op cit., p.11)

João Ribeiro was in the eye of this hurricane. In 1921, he launched the book *The National Language*, a defence of American culture compared to the European, a defence of the new languages arisen in America before the matrices of the old world and, especially, a defence of the language spoken in Brazil towards the current one in Portugal. In addition, J.R., as a well-established literary critic, was one of the first to support the modernist movement.

The National Language is the turning point for J.R's view of the *National Versus Cosmopolitan* tension ever present in his work. 1922 is a turning point at the national level. However, if those milestones point to the national victory, it is clear that there has been, at least since the turn of the century, a pendular movement of that generation of intellectuals between the *National* and the *Universal* (or cosmopolitan). In literature, the indefinition and the different shades of that period have earned the nickname "pre-modernist".

This "no men's land" shows how much the Brazilian identity used to float. Symbols of Brazil and "brazilianship our brazilianness" (*brasilidade* in Portuguese) would only consolidate in the collec-

tive imagination later in Vargas Age (1930–1954), when soccer and samba were raised to status of national symbols of the mass and modernists passed to the *estabilishment* of the Vargas government.

Not even the typical heroes of *Belle Époque* of Brazil were "panthetized" at the time: Machado de Assis died in 1908, Joaquim Nabuco in 1910, Rio Branco in 1912, Olavo Bilac in 1918, Rui Barbosa in 1923. It is in this context of clashes and debates about the national identity that João Ribeiro would launch

his books, adding even more peculiarities to a time when political, cultural, scientific and literary movements were not well defined and even the well-defined trends were idiosyncratic. Therefore, if his intellectual trajectory reveals a certain autonomy, his textbooks also reveal a certain independence and relation to the author who considerably modified his vision of the world and about the past and future of Nation, but not his textbooks that circulated for more 30 years after his death which occurred in 1934.

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Teaching materials for teaching history: teachers' perspectives

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ABSTRACT

This article shows results from research that had as an objective to analyze the production of history teaching material by general education teachers. The specific objectives of this work were:
a) to ascertain the teachers' concept of didactic materials;
b) to develop a proposal of didactic materials production by the teachers;
c) to analyze the didactic materials produced by the teachers.
The empirical work used inquiry techniques for the construction of semi-structured questionnaires and some content analysis procedures for revising material produced by teachers. The research started from the supposition that beyond books, there are didactic materials produced in different supports, which need to be evaluated. Even then, these materials should be judged by the specificity of the different school subjects, and they can contribute to supply the deficiencies present in textbooks. The results indicate that the History teachers produced "territorialized" materials with the objective to facilitate the knowledge about the territory in which they live. The production of these materials was justified by the absence of contents related to the local and regional history in Brazilian history textbooks.

Keywords: History teaching – History didactic materials – Teachers training.

1   Research context

This article presents results of an investigation which sought to analyze the production of history didactic materials by general education teachers. Participants in the study were teachers following the "Didactic Material Production and the Virtual Universe" course, part of the Professional Master's degree on history teaching, at the Federal University of Mato Grosso, located in Cuiabá, capital of the Mato Grosso state, in Brazil.

Offered in network in Brazil, the Professional Master's degree has been created with the purpose to provide continued education for the general education teachers. It is a part-time master's program with emphasis on the history education.
The specific objectives of this work were:
a)   to ascertain the teachers' concept of didactic materials;
b)   to develop a proposal of didactical materials production by the teachers;
c)   to analyze the didactic materials produced by the teachers.

The work was organized into three phases:
1.   administration of a semi-structured questionnaire to teachers;
2.   production of History didactic materials by the teachers;
3.   analysis of the History didactic materials produced by the teachers.
The research methodology was based on the inquiry techniques of a semi-structured model according to Ghiglione and Matalon (2005) and some content analysis procedures from Bardin (2011). It started from the perspective of didactic materials as mediators of the teaching and learning processes, according to proposals made by Bittencourt (2004) and Garcia (2011). Still in the comprehension that these materials contribute to establish some conditions where teaching and learning happen.

This article is organized into three parts. The first one dedicated to the procedures and strategies of the investigation, in which we discuss the construction of the semi-structured questionnaire and the procedures of the analysis of the produced didactic materials. Next, the results of the analysis of the questionnaires and materials are presented. Finally, we discuss the investigation and possibilities for future research.

2   Procedures: strategies and tools

Initially the objective was to understand the profile, conceptions, uses, evaluations and types of didactic materials utilized by the participating teachers and if they produced didactic materials to teach history. In this way, a semi-structured mixed questionnaire was constructed, composed of ten questions, seven being discursive and three being objective. Questions focused on several themes: three of them addressed personal and professional information about the teachers; one, the conceptions of didactic materials; three, the usage of these materials; and three, the types, measuring and production. The semi-structured questionnaire served to construct the hypotheses that were verified in the analysis of the didactic materials produced by the teachers.

From the perspective of BARDIN (2011), content analysis is a group of methodological instruments that allow analysis of different messages existing in diverse types of materials.

Keeping in mind the inquiry technique (the semi-structured questionnaire) and content analysis procedures, we will now go to the research's organization, which was implemented during the first class of the course. At this time, an initial presentation was made to the teachers and the semi-structured questionnaire was applied. In the sequence, ten classes lasting four hours each were ministered, during which didactic materials, types, evaluations, uses and production were discussed. Lastly, an open script to produce didactic material to teach history was proposed, without determined themes and supports. Thus, we encouraged the teacher's auto-nomy during the production of the didactic materials.

3   Results

The three initial questions of the semi-structured questionnaire addressed the professional profile of the educators participating in the research. Of the fourteen surveyed teachers, all of them were from public schools and two from private schools as well. Regarding how long they had been teaching, we found the following: Two teachers had one to five years of experience. Five teachers indicated having five to ten years of experience. Two said that they have 10–15 years of of experience. One teacher declared fifteen to twenty years of experience. Three teachers said they have twenty to twenty-five years of experience. Only one teacher indicated having between twenty-five and thirty years of experience.

Based on HUBERMAN's (2000) taxonomy, thirteen teachers would be in the phases of entering the career (1 to 3 years), stabilization (4 to 6 years) and diversification or questioning (7 to 25 years). The first is characterized by surviving, discovery and exploration. The second is consolidation, growth of the sense of competence and security. The third is defined by the diversification and experimentation accompanied by motivation and the search for new challenges. Only one teacher was at the point of serenity and affective detaching and/or conservatism and regretting (25 to 35 years) marked by the lamenting of the past along with serenity and conformity.

This information allowed us to evidence the potentialities of the group of participating teachers, which in the vast majority, is made up of educators in phases of construction and consolidation of their professional identities, moments of opening themselves to the new and experimenting, as observed by HUBERMAN (2000). Therefore, it seems appropriate for the research's objective of contributing to the reflection and production of didactic materials by history teachers.

The third question regarded the conception of didactic materials by the surveyed teachers. The chart below organizes the results:

ANSWER'S CONTENT	Nº
Resources used in classes	Four
Materials that assists in the teaching and learning process	Three
All tools used by the teachers and students	Three
Materials that allow to refresh and strengthen the teaching	One
Methodological tools that contribute to the process of teaching and learning	One
Support in any media that concerns the classes' content	One
Video, TV	One

Tab. 1 *Conceptions of didactic materials by teachers.*
(AUTHOR'S RESEARCH, 2017)

Four teachers think that the resources utilized in the history classes are didactic materials. Three answered that the didactic materials are those that assist the learning and teaching process. Another three think of didactic materials as all of the tools used by the teachers and students. One teacher thinks that

the didactic materials make the teaching of the subject more dynamic. Another says that the didactic materials are methodological tools that contribute to teaching and learning. Another one states that they are supports in any media that concerns the history classe's content. Finally, one thinks that they are videos and television.

Analyzing the content of the teachers' answers, we identify the diversity of existent conceptions. We observe the presence of conceptions as resources, instruments and tools, which brings to light a utilitarian view of didactic materials, as elements of the teaching and learning process. Regarding the functions, we identified the notion that these materials contribute to the teaching and learning of history. An antagonist difference between the types of supports that two teachers classify as didactic material is highlighted: while one believes that didactic materials may be any type of support, the other one limits it to videos and television.

The fifth question asked if the teachers utilized didactic materials during history classes. The fourteen teachers were unanimously answered that they use didactic materials.

Next, question number six concerned the frequency of usage. Nine teachers answered that they utilize didactic materials every day. Five indicated that they use them whenever it is possible. Results from questions five and six justified the research because they allowed us to evidence the frequent usage of the didactic materials by the surveyed teachers.

The seventh question asked if, in the teacher's opinion, the didactic materials contributed to the processes of teaching and learning and requested a justification. All fourteen teachers, again in a uniform manner, answered that the didactic materials contribute to the history teaching and learning. When asked to justify their response, they gave the following answers:

ANSWER'S CONTENT	Nº
Contribute to the learning of the students	Six
Assist the teacher in the processes of teaching and managing the curriculum	Two
Promote access and knowledge deepening	Two
Are the starting point to teaching history	One
Help to elucidate concepts and provide reflexive activities	One
Facilitate the teaching-learning process	One
Contribute to undo poorly made syntheses	One

Tab. 2 *Contributions of didactic materials to the History classes.* (Author's research, 2017)

Analyzing the content of the answers, we observe a diversity of contributions of didactic materials from the perspective of the sureyed teachers. Most teachers answered that the didactic materials contribute to student learning.

Question number eight was about the type of didactic materials used by the history teachers. In their responses, they could choose more than one type of material. Analyzing the answers, we can observe the prevalence of textbooks. The type of textbooks utilized by the teachers permits us to infer the dominance of textbooks, but also the presence of the concept that the didactic materials can be presented in different supports, as observed by Bittencourt (2004) and Garcia (2011).

Next, the teachers answered a question about the evaluation of the didactic materials. As the answers were open-ended, we had eight directed to the textbooks and ten that concerned the didactic materials in general. Regarding the textbooks, the teachers presented the following considerations:

ANSWER'S CONTENT	Nº
Insufficient	Three
Uncritical	One
Hard to comprehend for the students	One
Leaves out information	One
Too much content	One
Presents the winner's view/eurocentric	One
Reasonable	One

Tab. 3 *Evaluating of the History textbooks by the teachers.* (Author's research, 2017)

In the answers, we identified a number of critiques of the form and content of the history textbooks, involving the perception that these didactic materials are insufficient or failed. Furthermore, the teachers observed problems of criticality, language, the amount of information/knowledge and the approach. One of the teachers indicated that these books are reasonable.

These answers permit us to infer that, even though the history teachers use mostly history textbooks, as we saw in question eight, that usage does not exclude a critical view of these materials.

Regarding didactic materials in general, the following answers are identified:

ANSWER'S CONTENT	Nº
Good quality / Essential	Five
Shows problems / Are limited	Two
When well used are a very good tool	One
Hinder understanding	One
Starting point	One
The movies are long and should be adapted	One
The internet promotes fascination	One

Tab. 4 *Evaluation of history didactic materials by the teachers* (Author's research, 2017)

Among the answers a series of critical and/or negative evaluations are again identified from four teachers. Other teachers positively evaluated the didactic materials. It is possible, still, to observe the specific evaluations of the movies, as they are long and needed to be adapted and of the internet as an attractive.

We infer from the answers that, again, even though they utilize the didactic materials the teachers critique them, which allows us to comprehend its possibilities and limitations for the teaching and learning of history.

The last question asked the teachers if they produce didactic materials, and if they did, which are the types of materials produced. Eight teachers indicated that they produce didactic materials. One said that they sometimes produce materials. Five teachers answered that they do not produce any materials. Among the type of materials produced, we identified blogs and games as the most cited.

Considering the application and analysis of the contents of the semi-structured questionnaire results, the following hypotheses were built:
1. The teachers should privilege the textbooks as the support for the didactic materials produced
2. The didactic materials produced by the teachers primary focus is the learning of the students;
3. The didactic materials produced will answers the critics and insufficiencies indicated in the evaluation of the existing materials.

After the completion of the questionnaires, the script for the production of didactic materials was presented. The work should be delivered printed and presented to the classroom individually or in pairs. For this reason, as such, nine materials were produced by the teachers.

Firstly, we analyzed the way the presented didactic materials in terms of form, with the objective of observing the types of utilized supports. Five materials produced by the teachers were presented in printed or written format, three audiovisual materials, one mixed material (which consisted of print and/or written content accompanied by audiovisual material). Amongst the printed and/or written materials we identified two supplementary textbooks[1], two textbooks and one dictionary of historical concepts. For those in the audiovisual category, two blogs and a series of video-lessons were produced. The didactic sequence was considered a mixed material because it shows written and audiovisual content. This precursory analysis allows us to see that, even though the teachers showed a plurality and diversity of conceptions of didactic materials on the questionnaires, the production still includes the presence of printed/written "school tradition".

A thematic analysis allowed the identification of five materials dedicated to regional or local history, while the other four were destined to themes of what is called "general history".

In the regional and/or local history materials are two supplementary textbooks. One concerns the history of the Mother Church of the Good Lord Jesus of Cuiabá and the other one is about the History of Rondonópolis city, located in the Mato Grosso state. Other text materials include a textbook chapter that covers the Paraguai war in the Mato Grosso state, and one blog about the history of the Formosa city, on the Goiás state. Lastly, one is a series of video-lessons about the History of the Mato Grosso state.

In the presentation of the materials, the teachers justified their choices because those are themes missing in the conventional didactic materials, mainly the history textbooks. Therefore, the teachers defended the necessity of covering the themes so the students can know and connect themselves to where they live.

The general history materials were presented in the form of a blog about Classic Antiquity, a dictionary of historical concepts about the Second World War, a didactic sequence about the Industrial Revolution and a textbook page regarding Imperialism in Africa.

The results of the thematic analysis allowed the identification of the core meaning of the produced didactic materials. In these materials, the constant presence of concepts such as historical-cultural patrimony, regional and/or local history, state, region and city history permitted us to observe the prevalence of materials that we can consider "territorialized", according to the proposal by Rodriguez and Rodriguez (2007).

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[1] In Brazil, besides the textbooks that are organized by the knowledge subjects, and covers diverse topics, there are the para-didactic books, which are dedicated to study specific themes in these subjects. In this work, we use the terms "supplementary textbooks" to treat this specific type of textbook.

On the other side, we identified a group of didactic materials that were constituted with the objective of rethinking repeated themes in history teaching by using different languages. This was highlighted in the historical concepts dictionary, the only material produced with the collaboration of students, who were responsible for researching the concepts and writing the the dictionary entries.

4   Final considerations

The investigation had the objective to contribute to the production of didactic materials by the surveyed history teachers. For this, we started from the concepts of the professors themselves with the intent of considering them in the analysis of the didactic materials produced.

Returning to the hypotheses of the investigation, we verified that even though they indicated the constant use of the textbooks, the teachers did not privilege this type of didactic material. There was a diversity in the materials, which included supplementary books, blogs, video-lessons, didactic sequences, and dictionaries. We consider that this result is related to the phases of the teacher professional development suggested by Huberman (2000). In this way, it is understandable that the professors, when put to reflect and produce their own materials, took in consideration the diversification and experimentation, that reflected on the search of didactic materials that gave answers to questions not answered by the "usual" didactic materials, mainly the History textbooks.

Related to the concern with students' learning, observed in the answers to the seventh question of the semi-structured questionnaire, the teachers confirmed these worries in the production of didactic materials. It appeared in the presentation of the didactic materials, when they observed the need to contribute to student learning about regional and/or local themes or even the "canonicals" by means of other materials.

The third hypothesis was also evidenced by teachers in their choices for the nature, themes and support type. Identifying the problems in the usual didactic materials, the teachers opted for materials of a para-didactic nature with regional and/or local themes and diverse supports, that would allow them to make up for the insufficiencies indicated in the evaluation of the existing materials.

Based on these results, we understand that teachers' production of didactic materials has arisen from a need to start thinking from and for the history students. This commitment lets us see the necessity of opening new spaces for continued teachers' training like the Professional Masters' Degree in History Teaching. Besides that, new investigations would permit the unveiling of the contributions of didactic materials to the teaching and learning history. Therefore, there is a further need to investigatethe usage of didactic materials in the history lessons.

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New educational media for creative and socially open schooling

The aspirations and realities of Lower Saxony's educational renewal in the 1960s and 1970s[1]

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Abstract

The paper provides insights in the process of innovation and change in the curriculum and educational media landscape, and studies the groups of actors driving these changes, in Lower Saxony between 1960 and 1980. Alongside detailing the new curricula and multimedia formats developed for teaching social studies in this period, it will explore the interrelationships between the democratic turn in the education of the time and the development and production of innovative educational media. Drawing on and critically analysing State and private archive sources it discusses the hopes placed in and the limits of educational television as a means of democratizing school education in the 1960ies and 1970ies.

Keywords: Democratising education; new media; schools television; social studies; multi- and cross-media formats for schools

1   Introduction

In numerous European states, the 1960s saw the advent of fundamental change in education policy. Educationalists, policymakers and teachers responded to the challenges presented by competition in science and technology in the context of the Cold War rivalry between the world's major societal systems (Hof, 2017). This was a period in which success in shaping a civilisation underpinned by science and technology appeared as a key factor in securing high standards of living for Europe's population. Actors in this field, such as Ralf Dahrendorf, extended their concerns beyond this sphere (Dahrendorf 1965); committed to the essentially political idea of education as a fundamental 'citizens' right' within a democratic society, they advocated a democratic revolution in schools which would transcend industrialised society's concept of education as a means to an economic end (Kenkmann, 2000; Jessen 2004).

Alongside the introduction of new types of educational establishment, the creation of innovative educational spaces and the preparation of new curricula, this period experienced intense debate around reforms to schooling in the Federal Republic of Germany frequently centring on media and their role in education. Many of the education policymakers, educationalists and media developers at the forefront of this debate, with its stated mission to unite democratisation in the classroom with the development of new curricula and forms of educational media, came from the northern part of the Federal Republic, particularly Lower Saxony. Stakeholders from this state were key movers in the first pilot phase of television programmes for schools, transmitted in 1961 by the German regional public service broadcaster Norddeutscher Rundfunk (NDR; Northern German Broadcasting). From the end of the 1960s onward, education policymakers from Lower Saxony worked on experimental comprehensive school settings in what was then almost exclusively a three-tier secondary educational landscape, implementing a compulsory comprehensive 'orientation phase' for years 5 and 6 across all school types in 1973. The reformers regarded the combination of these initiatives as providing fertile ground for the evolution of new forms of media into cornerstones of change in the classroom.

It is against this backdrop that this chapter, whose principal intent is to stimulate discussion of the issues it outlines, provides an overview of developments in the curriculum and educational media landscape, and of the groups of actors driving these changes, in Lower Saxony between 1960 and 1980. Alongside detailing the new curricula and multimedia formats developed for teaching social studies in this period, it will explore the interrelationships between the democratic turn in the education of the

time and the development and production of innovative educational media content. Drawing on and critically analysing archive sources to reconstruct this interaction, the chapter will contextualise this period in educational history and in existing research on this topic.

The sources are drawn from the archive of the German regional public service broadcaster Norddeutscher Rundfunk (NDR), held by the Hamburg State Archives, from the Lower Saxony State Archive in Hanover, and from the archives of the University of Hildesheim, which contain both the archive of Heribert Heinrichs' Audio-visual Centre and a number of documents relating specifically to Heinrichs, a key figure in the development of schools television and the use of audio-visual media in educational settings. In addition to these, the chapter explores sources held by the archive of the German educational publisher Westermann.

2 The early 1960s. Media creators and school educators leading the way in new media development: the route to the 1970s' broad social consensus

Beginning in the late 1960s, media creators working at the German regional broadcaster Norddeutscher Rundfunk (NDR) were central to inspiring the communication of up-to-date knowledge within new media formats for schools. In 1961, the NDR became the first German broadcaster to begin pilot transmissions of television programmes for educational institutions. Many of those working there at this time – among them Franz Reinholz, who launched the schools television project – had trained as science teachers; this background gave them a strong affinity to the ideas of the scientific and technological revolution and a particularly open mind towards the innovations it had the potential to engender (KUTSCH 1986). The progressive convictions driving their work, and their experience within educational settings influenced by German 'reform pedagogy', saw them frame the emergence of these new forms of media within the overarching objective of democratising society in general and school-based education in particular.

The initiatives realised by those working at the NDR harmonised with the proposals drawn up at this time by educators teaching at Lower Saxony's teacher training colleges such as Heribert Heinrichs and Horst Wetterling. Having previously acquired extensive experience with radio broadcasts for schools, they regarded the medium of television as more promising still, believing it possessed optimum potential to help the content and practices of classroom teaching evolve to meet the need for an education suited to the new world of technology and industry. These educators associated this aim with a specific vision of the democratisation of education and schools, another process to which they felt television was capable of providing crucial momentum (HEINRICHS 1956; WETTERLING 1960).

From the 1960s onward, education policy in Lower Saxony had supported these efforts by viewing the necessity of education reform based around a longer duration of mixed-ability schooling and in line with the needs of a world dominated by industry and technology. Accordingly, they set up comprehensive institutions on an experimental basis (HERRLITZ 2013).

3 Educational publishers enter the field

Until the end of the 1960s, traditional educational publishers engaged very little in the development of audio-visual media for the teaching of social studies subjects in schools. It appears that they were waiting to observe the effects of the advent of television for schools on the views of educators, broadcasters and educationalists as to which media would have a central place in the social studies classroom going forward. The German state of Bavaria had begun televising regular schools broadcasts in 1964, inspired not least by the experience of northern Germany's pioneering transmissions in 1961 and 1962. By the close of the 1960s, the success of the Bavarian broadcasts saw textbook publishers increasingly seeking to get in on the audio-visual act. Their initial manner of proceeding was to accept the advances made to them by those heads of the German regional public service broadcasters who, like Christian Wallenreiter of Bavaria's Bayerischer Rundfunk, advocated the production of cross-

media formats for schools on a free-market basis. Wallenreiter was the initiator, in 1968, of the *Television Rundfunk Verlagsunion*, a syndicate made up of eight educational publishers, holding 60% of the capital, and the southern German broadcasters Bayerischer Rundfunk and Südwestfunk, who shared the remaining 40% (Hamburg State Archives, Norddeutscher Rundfunk Records No. 621-1/144_3838).

In 1970, a number of traditional textbook publishers responded to the challenge posed by the TRV by setting up an association known as *Verlagsgesellschaft Schulfernsehen*. This new organisation was an attempt on the part of textbook publishers to secure their position in the production of television-driven educational formats at a time when television for schools, certainly at the NDR, was riding on a wave of self-confidence.

The Hanover-based publisher Hermann Schroedel went a step further in his establishment with colleagues of the Schroedel Diesterweg Schoeningh Verlagsunion für neue Lehrmedien (Publishers' Union for New Media) in the summer of 1970. This association, alongside developing supplementary materials for existing schools television, created its own programmes for teaching and learning.

At the outset of the 1970s, then, in contrast to the situation in the early 1960s, a scene was emerging in which all relevant stakeholder groups – education policymakers, teachers from various school types and educational traditions, parents, and public- and private-sector media organisations – appeared to be working together towards ways of teaching and learning which combined democratisation in schools and wider society with attempts to provide children with the tools to shape the technology- and science-driven society anticipated for the future.

4   New knowledge via new media in secondary education

As outlined in the preceding discussion, crucial momentum for the emergence of new media for the social studies classroom came in the 1960s from schools television, with its capacity both to respond rapidly to new societal developments and to quickly reflect and incorporate changes to canons of subject knowledge and innovations in didactic methodology. The medium of television, able as it was to facilitate the combination of various formats of knowledge transmission, appeared to promise a fundamental shift in classroom practices.

These assumptions around television seemed to receive confirmation as teachers and pupils responded to the experimental broadcasts of 1961 and 1962, their views recorded in surveys and lesson observations commissioned by the NDR and carried out by Heribert Heinrichs and Horst Wetterling (Norddeutscher Rundfunk, 1962). These reactions appeared to provide a solid argument for introducing regular schools broadcasts sooner rather than later. The NDR's schools television teams, however, found themselves facing a succession of legal and financial issues which the broadcaster was not able to resolve until after the 1970s had dawned. An agreement on television programmes for schools concluded in November 1971 between the NDR, the broadcaster Radio Bremen, and the states of Bremen, Hamburg, Lower Saxony and Schleswig-Holstein secured compatibility of the general mission to educate incumbent upon public-service television with the ultimate authority over educational matters held by

each German federal state. An increase in radio and television licence fees provided funding for a second phase of experimental schools television programming, which segued into a regular schools broadcasting service in 1975.

At the same time, during the first half of the 1970s, the range of audio-visual media and cross-media formats available for schools was expanding exponentially. The programming produced by schools television services competed with taxpayer-funded original productions by Heribert Heinrichs' Audio-visual Centre at the Lower Saxony College of Education in Hildesheim and with offerings from textbook publishers working with hard- and software producers such as Bosch and Philipps and production companies including Windrose DuMont to create their own audio-visual media (Heribert Heinrichs, *Das Audiovisuelle Zentrum der Pädagogischen Hochschule Niedersachsen in Hildesheim* (The Audio-visual Centre at the Lower Saxony College od Education in Hildesheim), Hildesheim 1976. Archive of the University of Hildesheim, Dean's Office, no. 138). The textbooks published by these companies contained suggestions for using these resources in the classroom. The media produced by Westermann/Windrose DuMont and the *SDS-Verlagsunion für neue Lehrmedien* went far beyond simply providing written supplementary materials for school television series, drawing inspiration from the experiments with teaching via interactive school-based closed- circuit television conducted by Heribert Heinrichs in Hanover in December 1964 (Heinrichs 1964). These organisa-

tions regarded the media they produced as competing with the 'centralised' offerings of state broadcasting for schools, and designed them for use within the same systems and set-ups.

Educational media for the political studies classroom of the 1970s revolved above all around the audio-visual components of the various formats. Combined with the accompanying teachers' guides and workbooks, they contributed substantially to a thoroughgoing transformation in the design of school textbooks and the mission they set out to fulfil, raising a challenge to more traditional printed educational media.

5 Innovations in educational media as trailblazers for the definition and presentation of new classroom topics. The NDR's experimental broadcasts for schools, 1961-2

The topics tackled in the 1961 schools television experiment sought in the first instance to respond to the requirements relating to teaching about Germany's National Socialist past that had been formulated in a decree issued by Lower Saxony's minister of education in 1960. Above all, however, they foreshadowed the arrival in the classroom of the societal debates around the vision of a shared global 'scientific and technological civilisation' which was emerging at the time in the wake of decolonisation. The first series of experimental broadcasts, transmitted in 1961, focused on the development of India, while the second, in 1962, explored the Algerian independence movement. The broadcast on India, and the associated teaching module on 'Workers and Peasant Farmers in India', looked at economic cooperation between India and the Federal Republic of Germany (Hamburg State Archives, Norddeutscher Rundfunk records, no. 621-1/144_3838). In so doing, it projected the vision of a shared society, founded on scientific and technological progress and industrial growth, which was to create the economic basis for the democratisation process in the erstwhile colonies and the emergence of an international community with the capacity to maintain and uphold social cohesion and peace. From today's perspective, this vision of a scientific and technological civilisation of the future, with its normative character and exclusively positive contemporary connotations, is evidently ripe for critical analysis. At the time, however, the sight of German and Indian engineers working together as equals made an important contribution to overcoming the colonial prejudice which denied that indigenous populations possessed the ability to successfully and independently manage their country's political and economic affairs.

As well as pointing forward to new issues around societal development which subsequently, from the late 1960s onward, made their mark on curricula and textbooks, the experimental broadcasts for schools acted as test runs for novel perspectives on the planning and delivery of teaching. The schools programmes of this era which tackled the topic of the National Socialists' rise to power and their methods of consolidating their dominance made conscious use of drama formats, which appeared to the NDR team to be eminently suitable for imparting information while simultaneously creating an emotional impact (*Zwischen Nacht und Morgen* (Between Night and Morning), NDR schools television, 1961) (Hamburg State Archives, Nordeutscher Rundfunk records, no 621-1/144_3164). The broadcasting experiment itself, and the thorough academic observation and evaluation conducted on it by research groups headed by Heribert Heinrichs and Horst Wetterling in Alfeld (later Hildesheim) and Osnabrück, generated key subject-specific and didactical components of contemporary schools broadcasting which were to re-emerge later on, in the second experimental transmission phase in 1972 and the regular NDR schools television service launched in 1975.

6 Key elements of cross-media social studies formats for secondary education in the 1970s: Democratic participation and humanising the world of work

A new law on education for Lower Saxony, passed by the state parliament on 8 May 1974, defined the task of educating future citizens incumbent upon schools in a way that highlighted the fundamental change that had taken place in society's expectations of school subjects teaching about its workings.

This legislation asserted that the education delivered in schools, instead of making exclusive reference to 'Christianity' or to a 'German educational tradition' as its founding values, was in future to work explicitly towards 'develop[ing] further the ideas of liberal, democratic and social movements [seeking] to attain libert[y]'(Niedersächsisches Schulgesetz, 1975)[2]. In the heated debate around the legislation that took place in Lower Saxony's state parliament, Peter von Oertzen, the social-democrat education minister of the time, called for a view of democracy that would empower pupils in schools to take an active part in shaping a democratic society (Kufferath 2017). These convictions likewise manifested in the rights to participation in decision-making granted to parents and pupils in the legislation and played a significant part in the debates around redefining social studies curricula in the first half of the 1970ies. In the 1973/74 school year, the NDR and Radio Bremen produced its series on 'Multi-Media Political Education' (*Politische Bildung im Medienverbund*) for 9th an 10th grade students whose purpose was to provide an introduction to issues in political studies using six key thematic areas (Krink, 1973-1974; Hamburg State Archives, Norddeutscher Rundfunk Records No. 621-1/144_3163). The series commenced with a programme entitled *Wir und die anderen* (Us and the Others), approaching the topic via pupils' own experiences with prejudice at school. Further programmes in the series included 'Coming of Age for Democracy' (*Demokratie mit 18*), 'What does Participation Do for Me?' (*Was hab' ich von der Mitbestimmung?*), 'Male, Female or Human?' (*Männlich, weiblich oder menschlich?*) and 'Enough Wealth to Go Round?' (*Reicht der Reichtum für alle?*); the last of these reprised the concern with the production and distribution of wealth in 'one world' which had been a predominant theme in the experimental broadcasts of the 1960s.

The series, in the context of its mission to help endow young people with the capacity for active involvement in democratic society, afforded a central place to the issue of democratisation in the economic and business worlds. The unit on 'What does participation Do for Me?' focused primarily on codetermination in business, the economy and the workplace, extending the view to other arenas of society from this central vantage point (Damman et al. 1973). Taking a variety of perspectives, it showcased a diverse range of types of participatory involvement, from co-ownership of an enterprise and election of management by the workforce in general assemblies to the institutionalised models of employer-employee codetermination in supervisory boards which came under discussion at the outset of the 1970s and eventually found realisation in legislation enacted in 1976.

The series framed this exploration of democratic participation in the workplace in a context proceeding from pupils' experiences with authority at home and school, and pointed to the opportunities for influencing school life which had been enshrined in Lower Saxony's law.

The changes to the role of teachers in the classroom called for and foreshadowed in the experiments with television for schools in the early 1960s found realisation in these multi-media formats for political and vocational education. The television programmes, in showcasing diverse voices as authoritative, dislodged teachers from their position as sole authority in defining the knowledge to be taught and the manner of its delivery. A regular section within the programmes, called "Points of View" (*Standpunkte*), enabled teachers to define their particular perspective as one among the multiplicity of authoritative voices brought to the classroom by these formats. This method of teaching eliminated the risk that teachers might "overwhelm" their pupils with their person and point of view, a manner of proceeding which had once stood unchallenged as a pedagogical principle, yet had fallen into disfavour with the agreement on principles for political education for schools reached in Germany in 1976 and known as the *Beutelsbacher Konsens* (Frech, Richter 2017).

7   Conclusion

The progressive renaissance in education policy and practice that unfolded during the 1960s and early 1970s was to meet its limits as early as the end of the latter decade. Lower Saxony's educational policy placed a moratorium on its comprehensive school experiments in 1980 (Herrlitz 2013). Examined ret-

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[2] Following on from pre-school education, schools are expected to continue developing their pupils' characters on the basis of the Christian faith, the European humanist tradition, and the ideas of liberal, democratic and social movements which have sought to attain [civil] liberties'. Education Minister of Lower Saxony, Niedersächsisches Schulgesetz, Hanover 1975, pp. 9-10.

respectively, the great expectations placed by educationalists and media creators in the innovative potential of new forms of media appear to have been excessive, particularly with regard to hopes – not shared by the majority of teachers of the time - that schools television broadcasts would effect radical change in the way German schoolchildren learned. This said, the periodic setbacks suffered were not sufficient to permanently quell the optimism invested in the development of new forms of educational media by those engaged in this work. Some years after television for schools had failed to fulfil its promised rise to dominance, Carl August Schröder, the head of the Westermann publishing group's textbook venture, called upon his colleagues, in an essay entitled 'New Textbooks via New Media' (*Neue Schulbücher durch neue Medien*), to meet the challenge posed by the rise of individual computer workstations for school pupils by creating educational media tailored to the specific learning needs engendered by increasing awareness, in a politically individualistic climate, of concepts around individual creative learning (SCHRÖDER, 1983). And thus we find ourselves wondering whether we have come full circle as we look back to the early 1960s, when, as perhaps now, creative media developers had the opportunity and the mandate to bring to life innovative formats for an education commensurate with the demands and diversities of our modern life.

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The role of the Physics textbook in a teacher's curriculum development

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Abstract

This paper discusses some of the possible relationships between the use of the textbook and the curricular practices developed by a teacher in the school environment. The work, of an ethnographic nature, was conducted in 2015 with a teacher in a Public School of Paraná State, in Brazil. The work was theoretically supported by the perspective that the textbook plays an important role in elaboration of the prescribed curriculum (Sacristán); it works as a filter of knowledge and interests (Torres); as a regulator of the conception and development of teaching and of the relation between theory and practice, consisting in a control artifact over the teacher's work (Bonafé), and furthermore, due to being daily in the classroom, it works as one of the basic elements of the teaching organization (Batista). The results indicate that the textbook is an important instrument of curricular practice, guiding the teaching activities in the classroom, mainly due to its systematization. They also indicate an approximation between the curriculum practiced and the guidelines proposed by the textbook, at the expense of the curriculum planned by the teacher.

Keywords: Physics' Textbook; Prescribed Curriculum; Observation research; Physics Teaching.

1   Introduction

Despite the current technological advance, as affirms Apple (2002), textbooks continue to offer the greater part of material conditions for teaching in classrooms around the world. Thus, they are responsible for legitimizing the culture to be transmitted, knowledge selection filter (Torres Santomé, 1998), and, according to Lajolo (1996), decisive for the quality of learning, even if it is not the only material to which teachers and students have access.

About this, Rodríguez and Bonafé (2013) argue that textbooks often assume the curriculum objectives in an effective manner, and the proposed activities contained in it create a "type of closed circuit didactic in which what the textbook proposes determines in great part the curricular development in the classroom" (p. 217).

In the same way, Sacristán (2000) ponders that the textbooks intermediate and approximate the curricular prescription of teachers and the real curriculum that is developed in practice by the teacher. Once as regulator of planning and development of teaching (Bonafé, 2008), it is characterized as a con-

trol artifact over teacher's work. Thus, the textbooks are, according to Cassiano (2004), a prescriptive material of curriculum, and its use, which manifests itself in the classroom with certain subjects in a socio-historical condition, gives them the possibility and capability, due to the objective conditions, to subvert the prescribed curriculum.

In the same sense, Choppin (2004) points out that textbooks can perform four functions in teaching activity. The first is the referential function, when the textbook is a support of the curricular contents. In its instrumental function the textbook presents learning methods, supporting student learning. The textbook in its ideological and cultural function is used as a political apparatus, constituting "as one of the essential vectors of language, culture and class values leaders". And as the last function, the documentary, its elements will develop the student's critical thinking.

In the Brazilian case, the textbook's presence has been massive due to the Textbook National Program – PNLD, a program that evaluates, selects and

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distributes textbooks to every student and teacher in Brazilian public Elementary and High Schools.[2]

In this regard, considering that the PNLD is a program of large public investments; the intensive presence of textbooks in the daily life of teachers and students, and because textbooks perform a significant role in the organization of teacher's activities, an investigation of ethnographic character was developed which tried to verify the participa-

tion of the Physics textbook in the real curriculum development by one teacher.

In this context, taking the textbook as an object, this research aimed to verify, together with a high school Physics' teacher, through a systematic monitoring of their classes during a given period, the influences that the textbook exerts in the curriculum planning and in the classroom.

2   Methodological option

Torres Santomé (1998) recognizes that reflection about educational system and about what is the daily routine in the classroom is a complex task, because in these there are a significant number of events that depend on various cultural, social and economic factors. So, he suggests that in investigations interested in what happens in the classrooms, the methodologies of ethnographic nature are one of most recommended.

According to Rockwell (1995), ethnography is the best way to evidence the way of life in school, because it highligths what is absent in educational planning and pedagogical debates. It is a method of approach (Rockwell, 2005) and is not a neutral tool, requiring a long stay in a more restricted field, where this field experience is necessary, but it is not the only source of information.

In agreement with Ezpeleta and Rockwell (1989), for whom the school is understood as social construction, the didactic resources are part of the teaching and important in the interaction between social practices and pedagogical practices. Still, according to Montés Valls (2001), it is not enough to approach the study of textbooks as autonomous and independent, but to consider them in their complex relationship with students and teachers, through the particularities of each school discipline.

Considering these assumptions, the fieldwork was based on the dissertation of Garcia (1996) and was developed as a qualitative research of ethnographic character. For her, in an ethnographic study, it is necessary to consider the school as part of the society, which has its own internal purpose of transmitting the culture of that society.

After an initial study to identify teachers who regularly used the textbook in their classes, contact was maintained with a physics teacher at a public school in the city of Curitiba, in the state of Paraná, Brazil. In

the first contact with the teacher, it was explained to her about the research and the need for a teacher who uses the textbook in classroom. After accepting to participate in the research, the teacher provided her "Teaching Work Plan" (PTD), document where the activities that will be developed during the school year are registered and planned. She is graduated in Physics and has been active for 20 years in the public school system as a teacher of this discipline. Besides Physics she did another graduation.

The research was carried out in 2015, and, for only three months, the activities developed by the Physics teacher were accompanied in three of her classes. Since, given the real conditions of the moment that the research was held, it was not possible to stay in the classroom for a long time, a condition for a rigorous ethnographic research, the research was developed as an ethnographic approach. Despite this, it was possible to find some evidence regarding the main objective, which was to verify the textbook presence in the real teacher's curriculum.

The teacher's follow-up occurred with the help of a script of items to be observed (uses of textbook, exercises, readings, contents) and a logbook, an instrument of data collection where aspects and situations of interest of the research were registered. Thus, the relation between the teacher and the textbook was observed, as well as its relationship with the contents and exercises provided in the classroom. At the end of the observations the teacher was interviewed to verify some considerations and clarify some questions about the classes and her practice.

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3   Results and data discussion

Classroom monitoring consisted of observing the events related to the textbook and any other resources, to record it uses by the teacher and students. During the lessons, short notes were made according to an observation script. At the end of the classes, this script was filled-out by the researcher, and any matters that were not planned in it were registered in the logbooks, as example, some dialogues and occasional observations on students or teacher actions.

During the observation it was verified that the teacher's work was supported by three different textbooks. In her didactic planning, PTD, the reference indicated as the textbook was "Physics in Contexts" (PIETROCOLA, 2013). However, the textbook chosen by the teachers through the PNLD public notice and distributed to the students was "Physics" (BONJORNO, 2013), that she uses only for task development and exercise application. And the third book, only in her property, was "Complete Physics" (BONJORNO, 2001), used by her for contents and some exercises.

This diversity of textbooks allowed us to observe interesting situations. While in the PTD, in May, the orientation was to develop the structuring content "Image and Sound", corresponding to a chapter of "Física em Contextos" (PIETROCOLA, 2013), in the classroom, the teacher was developing the subject "Calorimetry and Phase Change", predicted in the textbooks "Física Completa" (BONJORNO, 2001) and "Física" (BONJORNO, 2013).

In general, the dynamics of the teacher's class varied little. She wrote the textbook's subject on the board for students to copy in their notebooks, even though the text on the board was often exactly what was in the textbook. She also extracted parts of the textbook and wrote on the board the information that she considered most important, or she dictated it to the students. The teacher also solved some exercises proposed in the textbook and asked students to solve others, both in the classroom and at home.

Eventually she asked the students to solve exercises or do other school work in the library. In these cases, she instructed students to use not only their textbook, but also other books available in the library, emphasizing that her practice was always supported by textbooks.

This relationship with the textbook was also explicit during the overall evaluation, when the teacher asked her students to study for the test through the textbook exercises and the last test.

It was also possible to verify that the exercises of the overall evaluation were similar to the regular evaluation, however, with different values. About this situation, the teacher explained that even then, some students left the evaluation blank.

4   Conclusions

Through the observation's analysis it was possible to verify the strong presence of the textbook in this teacher's classes, as well its influences in the teacher's practice.

It was found that the textbook guided the content, its form and organization, through the didactic sequence that it presents to the teacher. The textbook directed the exercises that the teacher worked with in the classroom, as well as exercises for students to be solved in the classroom and at home. It also guided the evaluation and student work.

Thus, these analyses confirms the view of BATISTA (2005) when he affirms that the textbook is a daily object present in the classroom and one of the basic elements of the teaching organization.

It was also possible to identify only two of the functions pointed out by CHOPPIN (2004), the curricular and instrumental functions. The curricular function was evidenced by the fact that the textbook assumed the role of support of curricular contents, with the teacher following both the methodological sequence that the book presents, as its content, text, figures and equations. The instrumental function was verified through the selection of exercises that the teacher did of the textbook, with the textbook providing learning methods, exercises and activities, which aim to facilitate the memorization of knowledge.

Besides the textbook provides guidance on both content and classroom exercises, it also guided the assessment, which occurred in a very similar way to what had already been worked on in the classroom.

The observation also made it possible to note the gap between planned and practiced activity, evidenced by the fact that the teacher's work in the classroom was based on two textbooks that were not registered in her Work Plan (PTD). In fact, the use of one of them, which only the teacher possessed,

indicates the strength that tradition and the need for security play in the exercise of the teaching function. In declaring herself adapted to the textbook "Física Completa" (Bonjorno, 2001), she demonstrates the difficulty in adapting to other textbooks with new proposals.

The role of the textbook as guide of the real curriculum developed by this teacher was reinforced, since it was present at several moments in her classes, taking on a role of great importance in teacher practice.

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A ReVEA project case study: French biology teachers & educational media

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Abstract:

The on-going French ReVEA project explore on the numerous processes done by teachers concerning educational media, including design, search, selection and uses of resources in secondary education. This paper focuses on researches about a school subject named in French *Sciences de la Vie et de la Terre* (SVT) which encompasses Biology and Geology topics. A mixed methodology of data collection including interviews has been implemented in order to be able to describe and understand SVT teachers' activities on and with resources. How do SVT teachers cope with or balance between curriculum requirements and a wealth of resources to choose from? Through depiction of their working environments including institutional constraints and of teacher 's profiles, we describe how French SVT teachers do build a functional framework to control their situation and environment. They spend a lot of time researching resources and exerting their professional expertise in three main tasks: Selecting between many existing documents, modifying and adapting to local conditions (material, budget, time and pupil level), working on rewording of questions and classroom instructions.

Keywords: Biology, Teachers, Educational Media, France, Secondary education,

1   Introduction

The ReVEA[1] project aims to fill a knowledge gap on the evolving uses of resources by teachers in this period of transition to numerical supports. The researches aim to document the range of tasks revolving around educational resources that constitutes the visible and accessible part of teacher's work to get ready for teaching: Researching and selecting, processing, redesign, editing, adjusting as well as sharing and publishing educational media just to mention a few. At the Lisbon IARTEM conference (Sept 2017), there have been several presentations related to the ReVEA research project, in sessions such as Physics, Teacher training and Language. This paper aims to give an overview of the researches done on the school subject named in French *Sciences de la Vie et de la Terre* (SVT) which encompasses Biology and Geology topics. Our intent is therefore to contribute to uncover and describe teachers' tasks; quite a challenge, as it is not easy to document teachers' activities in details (Diekema & Olsen, 2014). To this aim, we have adopted a mixed methodology, combining semi-structured interviews and data collection of resources, allowing us to collect the discourse of SVT teachers on resources and get a picture of their working environment.

Thereby, results are presented in two parts: Firstly, a description of the teaching environment including institutional constraints as well as the wealth of resources available and three teachers' profiles; their combined analyses allow to understand how SVT teachers cope with this situation.

2   Teaching resources survey – Data collection Methodology

Our methodology of investigation for this research has required to follow up teachers regularly, meeting up about twice a year. We have adopted a mix methodology composed of semi-structured interviews and data collection of resources. Usually two types of semi-structured interviews were conducted: a primary interview to determine background's teacher and her attitudes towards resources and a clarifying interview focused on detailed comments of one of her own files. The data set collection of

resources comprehends classic teacher's files such as lesson plans, slide shows, pupil handouts and so on but also gaining access to their blog, online or hard drive storage as well as classroom observations and sometimes recording of activity on computer using Camtasia software. We have also done interviews of National Education's inspector on SVT resources theme to enlarge our perspective of institutional and teaching environments of SVT teachers. The semi-structured interviews were analysed using a thematic content analysis methodology, based on the grounded theory (GLASER & STRAUSS, 2010). This mix methodology had leaded us to the construction of individual profiles including descriptions of their teaching environment (WEIL-BARAIS, 1997). The participating teachers were all civil servants teaching SVT school subject at 10th grade (so called *Seconde* level in France) in upper secondary schools in Paris and its inner suburbs.

3   Biology & Geology in French secondary education

At grade 10, the school subject SVT encompasses a curriculum with encyclopaedic scientific knowledge and numerous teaching constraints defined very succinctly in national official guidelines, as we shall see below. Complementary official guidance regarding competencies is given in the curriculum while pedagogical freedom let SVT teachers alone to face a world of plenty of educational resources, very diverse in nature and origin (POMMIER, 2011). Indeed, as all French teachers, they carry out their professional activity in the realm of pedagogical freedom, which means that the French state has no regard on the resources used for teaching (CHOPPIN, 2005). Under this pedagogical freedom umbrella, teachers can use whatever they deem or find useful for their teaching purposes. Indeed, they have at their disposal, a seemingly infinite number of educational media available in all format and style, from raw to fine tuned didactic resources. The question we therefore wish to address in this paper is: How do SVT teachers cope with or balance between many institutional requirements and a wealth of resources to choose from?

4   Curriculum constraints

The official curriculum of SVT at grade 10 encompasses three main scientific themes, namely Earth as a host planet for life and biodiversity's evolution – Global contemporary challenges (energy and food supply) – Human body and health (physical activity) – with time resources of 1.5 hours/week, often taught in half-class group to allow practical experiments with specific instructions to consider different scales: ecosystem, species, organ and tissue level, cellular, molecular and even atomic level if possible. These instructions leave room for interpretation and lead each teacher to develop more precisely specific topics according to pupils and/or teachers interests. As grade 10 is an orientation level, specific official guidelines are given about introducing to career counselling through discovery of scientific jobs whenever possible in parallel to scientific content. And last but not least, there are also recommendations aiming to develop pupils' scientific culture, citizenship spirit and critical thinking and so on. Without entering into the small details, we need to add other requirements that teachers must take in account:

> General competencies (such as for example, being aware of the ethical implication of science)
> Use of Information and Communication technologies
> Problem solving approach
> History of science
> Real world situation/complexity
> Pupils autonomy
> Teamwork

The teachers have to somehow combine all these elements or compulsory features in their lessons and distribute them evenly along the year.

According to official instructions, a lesson would start ideally with a real-life situation that would be discussed between pupils and teacher. This should lead to the emergence and formulation of a science problem by the pupils (CHALAK, 2014). Thereafter, a classroom activity should be elaborated and realized to address the scientific problem stated: Either experimental work such as laboratory work eventually using software-based simulation or documents

analysis from varied sources such as audio, video, pictures, texts. The end of the lesson or chapter should always include an assessment time which could include a short summary and a synthesis diagram that would sum up the main scientific content. Once in a while, the teacher should organize an original event such as a debate between pupils, an oral presentation, a museum visit or a conference.

5   A wealth of resources

In the realm of pedagogical freedom, French teachers can use whatever they think useful to prepare and teach their classes. The French state does not have a scrutiny right on educational media and if it does produce resources, it's only by way of example (Bruillard, 2005). These resources made by teachers and inspectors are shared on official websites. So French teachers end up with at their disposal a wealth of resources from various sources (public or private), with very different levels of readiness, from ready to teach to raw scientific materials. They have to choose from a very large supply of educational media and this choice can be daunting. Without wanting to make a definitive list, we can quote a range of sources that almost all interviewed teachers report at one point to consult: From textbooks from private publishers to National Ministry of Education official website (Eduscol[2]), and initial training and university courses. They consult resources as well coming from colleagues, shared lecture notes, professional mailings-lists, teacher's blogs and websites or YouTube videos. There is also a mine of commercial offers such as private tutoring websites to textbooks (six major publishers offering paper and online versions). In SVT, there are several commercial laboratory brands selling specific laboratory equipment that offer or sell protocols and associated resources to help getting ready for teaching. Let's not forget to mention living material such as plants, small animals but also microorganisms such as bacteria, fungi and yeast … A number of software are necessary, a few of them are freely available on state websites, the commercial ones are quite expansive. Finally, we can mention others important sources of scientific materials such as CNRS, INSERM, INRA, MNHN[3], all are academic research institutes that offers resources designed specifically for high school teachers and pupils. This goes from guided tour and on-site conferences to video and text freely available (Pommier, Foucaud-Scheunemann, & Morel-Deville, 2011).

6   Preparing for class

Through three case studies, under the form of quick teacher 's profiles, summed-up below, we aim to illustrate the kind of results our data collection methodology allows to obtain and which insights we can gain on how teachers manage to somehow combine all these official elements or compulsory features in their lessons and how they cope with between many institutional requirements and a wealth of resources to choose from.

Teacher A

Mrs A has eleven years of professional experience in secondary education, seven of which in high school. Presently, she is the sole SVT teacher in her high school. When asked how she was proceeding to get ready for teaching, she declares that she "immerses herself" in official instructions, reading very carefully the *Bulletin Officiel*[4] which lists all current programs, teaching directives and paying attention specially to key notions and boundaries. Then she sets up a yearly teaching master planning to be sure to fulfil curriculum specifications regarding aims, scientific contents, methods activities and pupil productions … Then for each specific chapter, throughout the year, she enters in an extensive phase of research to prepare either documentaries activities that require texts, images, videos, screenplays or practical activities that require protocols, scientific experimental equipment, software … In her research

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[2] http://eduscol.education.fr/pid23214/sciences-vie-terre.html

[3] CNRS: Centre National Recherche Scientifique
INSERM: Institut National de la Santé et de la Recherche Médicale
INRA: Institut National de la Recherche Agronomique
MNHN: Muséum National d'Histoire Naturelle

[4] Bulletin officiel de l'éducation nationale, de l'enseignement supérieur et de la recherche (B.O.)

process, she skims many textbooks, colleagues' lesson plans and various documents. She can access several of them on a Google drive shared with a bunch of colleagues. She consults various websites that she accesses through Google search engine using "explicit keywords". During this research phase, she selects items that she will use to produce slide shows or handouts to support pupils' activities. Mrs A tries to realise throughout the year a maximum of practical activities that she calls "Real experiments" whether is it software-based or laboratory work. During her course preparation, she exchanges with a close colleague resources but also advices on pedagogical approaches and teaching styles, specifically. She is currently working on changing "her formal lecture teaching style to a more oriented toward problem-solving style (that includes using a teaching scenario)". She looks also on other teachers' blogs and websites to "reassure herself", as she says, "to be sure to be on the right track". As she is alone in her school, she doesn't have colleagues handy to discuss and exchange information on a day-to-day basis.

Teacher B

Teacher B has only three years of teaching experience, it is his first year in high school, and so he is still discovering curriculums that he has never taught before. His high school is quite large, the SVT Team is composed of six teachers and a laboratory technician. He is always in a hurry, making a week to week planning, relying almost exclusively on the consultation of the shared laboratory SVT team planning. It allows him to know which practical activities his colleagues are doing with their pupils and he usually asks the technician for exactly the same experimental set-up. On his computer, his files are organised in many folders. Each folder contains files given by a different colleague such as slide shows, pupils' handouts, and tests in ready-to-use format such as pdf … He spends lots of times scanning these files and chooses usually between them the ones he will finally use in class. He completes by looking through a selection of websites that he knows well. He makes a selection of ready-made activity and handouts. However, he always realizes his own slide show to support his discourse, selecting new pictures and wording titles and legends carefully. During a classroom observation during which pupils were doing a software-based activity on DNA structure, we have been able to observe how he is adapting to real-life situations. Although he had carefully planned his

activity starting with a friend worksheet, removing too detailed information and rephrasing in a simpler way to adapt to his pupils' levels, he had to accept and adapt to the reality of present-day situation: No internet and some computers down and so he had to improvised with his printed worksheet. Mr B reports that he tries to "resist activity as it distracts pupils from conceptual thinking". He is continuously working on support and activities to adapt to current pupils' knowledge and understanding, simplifying according to pupils' feedback and to his environment, especially hardware constraints. He has set himself the goal of avoiding using as much paper as possible in class, as a way to transmit his ecological engagement and to fulfil his duty to educate to sustainable development.

Teacher D

Teacher D has a high level of certification and a long teaching experience of twenty-five years. He recourses mainly to institutional resources. For him, teacher's core function is to "spread knowledge and therefore he lacks the means to judge the credibility of scientific information". He especially does not like teacher blogs that are usually only "pale copies of textbook". Furthermore, he explains that for him "all textbooks are the same". The pupils have to come up in his class "with the white lab coat but not the book". During interviews, he talks a lot about material supplies required for practical class activities such as gypsum, lichen, seaweeds or flowers which take time and handling. Researching resources to teach isostasy, he first looks at his favourite national institutional website to refresh his theoretical knowledge of this scientific concept and learn about the type of activity that can be done with grade 10 pupils. He then downloads on another institutional website a numerical modelling free software. And finally, he searches and buys an analogical model from a well-known school supply retailer. Research and selection are really time-consuming steps and it seems to him in sharp contrast with the time he spent 25 years ago when he was a beginner. He had then just one textbook and was following it step by step. Now he spends hours searching and selecting resources, some more hours on pedagogical design to produce his own worksheets, always in search of aesthetic style that he feels now essential. Therefore, he takes him "more and more time to get ready for teaching" which he feels contradictory with his extensive professional work experience.

6 Building a functional framework to control the situation

Building up analyses on teachers' profiles and the landscape in which they evolve that we have been able to reconstruct, some trends emerge. The main lines can be sum up, as following:

> First, they all stick to the Bulletin official. They indeed spend a lot of time reading and interpreting it, using it as a way to frame their work, to define and delimit their teaching goals. Actually, teachers do have their own understanding and they can spend lots of time together discussing on interpretations and allowed variations of key notions.

> Second, they all already have in mind the final exam of grade 12 called "Baccalauréat". It delineates a framework of what should be precisely mastered by their pupils. So, despite the formal liberty of grade 10, this horizon constrains practical activities that are mostly oriented toward mandatory knowledge of certain software's or experimental apparatus ...

> Third, they all develop a strict organisation with yearly planning. Some of them even use three-dimensional yearly planning (time, knowledge content and competencies).

> Fourth, they all produce documents, slide shows, and pupils' handouts that are a combination of granules from various sources eventually modified by them. However, they usually produce their own explanations and questions.

7 Solitary work

One striking point of this survey is that all SVT teachers describe their activities with resources as heavily time-consuming solitary works. However, if their tasks are in themselves solitary ones, it appears clearly that their work rely strongly on their surrounding environments and imply numerous exchanges with other teachers. First of all, they work a lot on documents made by other teachers (from acquaintances or found online), which serve as a basis on which they elaborate their own productions. Although they usually declare to have access to four to five files of colleagues, they all admit that it is very time consuming to consult all of them, so they usually focus on one that they really appreciate because they feel it similar to their ways of thinking, pedagogical views or scientific approaches. They also usually share their own production with a close colleague using online sharing tools. Apart Mr D, which sounds as an exception, they consult very few official resources and never in first instance. Navigating on Google, they can stomp by on one accidentally and will possibly use it. Nonetheless, teachers stress there are so much more options available on Internet to consult, mostly proposed by SVT teachers.

8 Conclusion & Perspectives

Analyses of results show that although SVT teachers work on their own, they actually adopt quite similar ways around using resources and they form a network even a community. This deserves to be analysed in more detail, for example according to the principle of community of practice (WENGER, 1998). Another lead is to analyse the role of teacher's content-related knowledge regarding choices and modification of resources (GROSSSCHEDL et al, 2014). Finally, although not presented here another strong axis, unveiled by our research, that orients search and choices of resources personal is personal interests and skills. For example, amateur photographers use their own pictures, video editors usually produce and show lots of mixed video in class, some are even making their pupils film and edit their own videos in class project. Further inquiry of this personal component could be also an interesting perspective for this research (ROBERT & ROGALSKI, 2002).

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Teachers and textbooks and educational media

Textbook development with the involvement of teachers

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Abstract

This paper is about a content development project that has been carried out in recent years in Hungary. New experimental textbooks and digital materials have been prepared for elementary and secondary levels. All materials are available for teachers, students and parents via a new public education portal. The final versions of the textbooks have been accomplished as a result of a three-year testing process. Teachers evaluated the texts, tasks, layouts, visual elements and other didactic tools of each lesson in the textbooks. As a result of this process the average score given by teachers before and after the revised version in grade 1 grew from 6.59 TO 8.21, in grade 5 from 5.75 to 8.15, and in grade 9 from 5.53 to 8.0 (Kojanitz & Kerber 2018).

Keywords: textbooks, experimental textbooks, trial-based textbook development, digital textbooks, digital learning materials, learning environment, teachers' feedback

1   Preliminary goals of the development project

Textbooks have gradually become free of charge for students in primary and secondary schools in Hungary since 2013. In addition, the state wished to take a larger role and responsibility in the quality development of textbooks. So the decision was made to ensure that new textbooks and workbooks can be comprehensively tested and tried in schools during the development phase of textbooks complying with the new National Curriculum. The appropriate conditions for this activity were provided by two EU-funded development projects. The development process started in the framework of SROP (Social Renewal Operational Programme) Project 3.1.2/B in 2013 and then continued as part of HRDOP (Human Resources Development Operational Programme) Project 3.2.2. Between 2013 and 2017, 110 new primary school and 70 new secondary school textbooks and workbooks were written, tested and revised in total. Around 1000 teachers of over 300 schools were involved in testing the first versions of these textbooks.

The projects were also designed to renew teaching and learning practices, with special regard to the use of opportunities provided by ICT. Top priorities included such factors as adaptability to age groups and specific student profiles, the ability to coordinate conventional and digital educational tools and contents as well as upgradability and the opportunity for continuous development. So Project HRDOP 3.2.2 requires developers to create such digital textbooks that can be linked to digital contents, exercise databases and adaptive evaluation tools as well as provide better interactive options for students, thus promoting a quality improvement in teaching-education and the development of key competencies. In order to allow for the school application of all these devices, the projects also aim to create and constantly develop a completely new National Public Education Portal (nkp.hu). Launched in 2016, this portal must enable users to access and utilize the final textbooks and digital education materials as well as to allow both teachers and students to amend, edit and share these materials.

2   Laying out a joint development concept

The project enabled us to involve universities in the content development process and the professional support for creating the National Public Education Portal. The preliminary studies supplied by the universities were then used for developing the overall professional concept of the project. This concept was published and, even during the project implementation phase, it was accessible online for all users, including the teachers testing the textbooks written based on this concept (Kojanitz, 2014).

The common professional expectation was that the experimental textbooks must contain reliable

and up-to-date knowledge and must help teachers focus on essential knowledge, key ideas, correlations and competencies (Chambliss & Calfee, 1998). Textbooks were also expected to arouse students' interests in the various topics, inspire them to think and study on their own. They had to provide patterns for adopting and applying efficient learning strategies and methods (Bransford, 1999). They had to establish as many correlations as possible between the school materials and the phenomena and problems experienced in daily life. They were expected to inspire students to constantly reflect on their readings as well as to relate the new information to their earlier knowledge. The questions, exercises and discussion points of the textbooks had to ensure that students can play an active role in the process of learning new information. They had to support the planning and implementation of classroom group

exercises based on student cooperation, as well as to help the constant development of reading comprehension skills and the joint use of different information sources in the learning process (Garbe, 2013). They had to be instrumental for teachers in carrying out personalized learning processes. Another requirement was that experimental textbooks should offer a wide variety of opportunities for children to activate and use their own experience in the learning process. The new textbooks were also expected to provide assistance in many aspects for fully integrating the Internet as a useful tool into the teaching and learning process. This overall approach served as the basis for the project's editorial staff of native language, mathematics, natural and social science education to prepare their own development concepts for each subject.

3 Designing a new digital teaching and learning environment

A key objective of Project HRDOP 3.2.2 is to help the transition from printed textbooks to the use of digital education materials (Reints, 2015). It is very important because ICT tools allow us to replace some of the many functions crammed into textbooks by digital education materials. The digital textbooks that were developed in the framework of this project offer students mutually complementary digital materials. For example, films, animations, simulations and exercises for practice and self-revision are now available for teachers and students, directly linked to the particular textbook content. Furthermore, the scope and versatility of such digital content

can be constantly enhanced, thus offering increasingly flexible usage options for the teacher's work.

The Internet, the multimedia-based education materials, the interactive exercises and the other novelties of digital technology provide many new and exciting opportunities to make learning a more interesting and successful process (Sampson & Karagiannidis, 2002). Today's school generation obviously expects the use of constantly available online digital education materials as well as opportunities for cooperative and creative learning. The National Public Education Portal offers many new options for students in this area as well.

4 Analytical testing methods and tools

The achievement of a testing-based textbook development process needed three years to be implemented. The first year saw the preparation of the experimental textbooks, which were then used and tested in schools in the second year, while they were revised in the third year based on the practical experience.

According to the relevant legal regulations in Hungary all schools are allowed to order and use materials classified by the Minister of Education as experimental textbooks. Thus over 3000 schools were involved in the application of experimental textbooks in the past three years. All teachers working with these textbooks were eligible to voluntarily partici-

pate in the questionnaire-based surveys. For example, the online questionnaire, which was launched in November 2014 was completed by 3755 teachers. Projects SROP 3.1.2/B and HRDOP 3.2.2 both enabled us to more closely involve 30–50 teachers per textbook in the testing process for a special remuneration on a contractual basis.

Testing teachers used the experimental textbooks throughout the entire schoolyear. This solution provided the best conditions for them to form a realistic opinion of how the textbooks functioned in practice with regard to the amount of information contained or the tools supporting effective learning, for example. The cca. 1000 teachers thus involved in the

testing process maintained an e-diary of their work on an online surface specifically created for this purpose. Throughout the academic year, they constantly recorded their practical experience with using the textbook. We pointed out to them how important it was to enter their notes while their memories were still fresh as to which elements worked well or caused problems during the teaching and learning process. In their e-diaries, the teachers evaluated all lessons and their various components as well, for example: the core text, the complementary sections, the figures, the questions and the exercises, scoring them on a scale from 1 to 5. To assist them in the evaluation process, they could find a recommended set of evaluation criteria for each element. They also had to provide an explanation for their scores, in which they briefly described why they liked the particular features or what problems or errors made them give a lower score for some elements. We also asked them to make proposals for the correction of the textbook details they found problematic, but they could also make suggestions on the textbook as a whole, for example, to modify the themes or the internal structure of the lessons.

When you design the training courses for new educational materials, it is not easy to decide what knowledge and competencies teachers need the most, and in what areas and how they should be motivated to try new things. Teachers become much more motivated if they experience that the training sessions give them answers to the questions related to the problems arising in their daily practice. The feedback offered in relation with the textbook trials may give us good information for the above as well. The teachers' feedback on the textbooks has also revealed a lot about what they think of the goals of teaching a particular subject or the methods supporting students in their learning process. It provides a good picture of the pedagogical approach and methodological repertoire they currently apply. So the teacher diaries written in the framework of this project are valuable sources for further research to explore teaching practices and will be a good base for designing teacher training courses as well as for preparing teaching aids related to the textbooks.

In addition to the diaries, there were other means to collect teachers' feedback and suggestions, such as:

1. Early in the academic year, we conducted an online questionnaire-based survey on the teachers' expectations of the textbooks as well as on their first impressions regarding the new textbook.
2. In the second half of the academic year, we organized group discussions in workshops where testing teachers could personally share their feedback with the textbook producers and each other as well. They could also debate the emerged criticism and suggestions, too. These meetings were highly successful since teachers were happy to participate and were interested in the experience and methodological solutions of their colleagues who often worked in a completely different school environment than their own.
3. At the end of the academic year, the research team conducted focus group interviews with the teachers and students involved in the testing process of the particular textbooks.
4. At the end of the academic year, another online survey was conducted among the teachers and students who used the experimental textbooks. This survey primarily focused on textbook evaluation based on particular criteria, including what effect, in the teachers' opinion, the content and exercises of the new textbook had on the teachers' pedagogical approach and methodological practice as well as on the students' learning process.

Survey results were presented in flash reports and summary studies made by researchers and data analysts. The main objective of these measures was to ensure that the feedback and suggestions of textbook users could be clearly identified during the revision of the experimental textbooks, as well as to make sure that each indicated problem is solved and each good suggestion is implemented in the process.

Most of the teachers volunteering for the task were highly motivated in terms of testing the experimental textbooks. They were very happy to be involved in this project and thus connecting into the professional bloodstream, which inspired their work personally while also giving a lot of new information and professional impulses for their schools as a whole. This productive cooperation of textbook producers and teachers must definitely be continued in the future. Some of the schools and teachers are prepared to get involved in nationwide pedagogical innovations and research projects. They should be given a chance to do so, because such opportunities may play a highly important role in the retention of talented teachers while nationally acclaimed school- and teacher-driven innovations may boost the general reputation of teaching as a profession.

5   Textbook revision and improvement

Revision based on the feedback from teachers and students posed a completely new challenge for all editors and authors. The means and methodology for this process had to be developed in the framework of Projects SROP 3.1.2-B and HRDOP 3.2.2.

To ensure professional controllability and milestone assessment, the revision process was divided into functionally separable work phases.

1. Overview testing results pertaining to the entire textbook in general
2. Group and prioritize challenges to be met
3. Discuss and adopt editorial suggestions for changes affecting the entire textbook (thematic rearrangement, modifications in the internal structure of units and lessons, typographic changes, reducing or increasing the length, creating new textbook elements, e.g.: term base)
4. Discuss and adopt editorial suggestions to revise the content of the particular lessons E.g.: which lessons need to have their texts improved, or replaced by new ones; which pictures, figures and maps need to be corrected, modified or replaced by new ones
5. Implement the agreed modifications and revisions: improve certain texts and exercises or replace them by new parts; create new pictures and figures, carry out the typographic changes

6. Perform edition, layout, correction, proofreading tasks
7. Pass the proof of the revised textbook.

During the revision process conducted in the framework of Project HRDOP 3.2.2, we laid great emphasis on collecting and using comments and suggestions related to the interests of hard-to-motivate and disadvantaged learners.

The findings showed that revision was a highly complex professional task which cannot be successfully accomplished without a very close and disciplined cooperation of editors and authors. If the above condition is met, the overall structural changes and the specific content related improvements of the particular lessons may be completed within about 20–25 weeks – depending on the extent of the revision required.

After the completion of the revision process, Project HRDOP 3.2.2 will conduct a specific research to fully explore and present the experience gained in terms of trial-based development of textbooks. In addition to the analysis of the documents created during the development process, it will be very interesting to make interviews with the editors and authors as to how they saw this multi-stage development process from inside.

6   The testing teachers' opinion on the revised versions

The revised Grade 1, 5 and 9 textbooks and the related workbooks were completed by February 2016. By 2017, the revision of all the textbooks for the other grades was completed in the framework of Project HRDOP 3.2.2. These teaching materials have also gone through the usual accreditation process, so now they can be ordered by schools as so-called new-generation textbooks rather than experimental textbooks. Teachers were helped in their decision-making by the fact that anybody could thumb or read through these new publications on the National Public Education Portal, even as early as in the ordering phase.

We were very interested to see how the revised editions were evaluated by the testing teachers whose opinions had such an important role in the changes. So we asked them to give us their feedback via an online questionnaire. Initially, they had to evaluate the first, so-called experimental textbook and then the revised new-generation textbook on a scale from 1 to 10. Their responses indicated that

teachers sensed a significant improvement with regard to the textbooks of all three grades.

Naturally, the evaluations submitted by each teacher added up to this high rate differently for each textbook. Some textbooks already received relatively good scores even in their experimental phase, but their revised versions could achieve an even higher score afterwards. These textbooks were typically written for the elementary grades. In other cases, there was quite a great difference between teacher evaluations of the first and the revised versions, but the evaluations of particular teachers often varied greatly as well.

In addition to an overall evaluation, testing teachers were also asked to provide specific feedback on the key changes as well. The question was: how relevant they felt these changes were, and how satisfied they were with the implementation of these changes. In nearly all cases, they agreed that the changes were necessary and they judged that the implementation was good, too. This proves that the testing

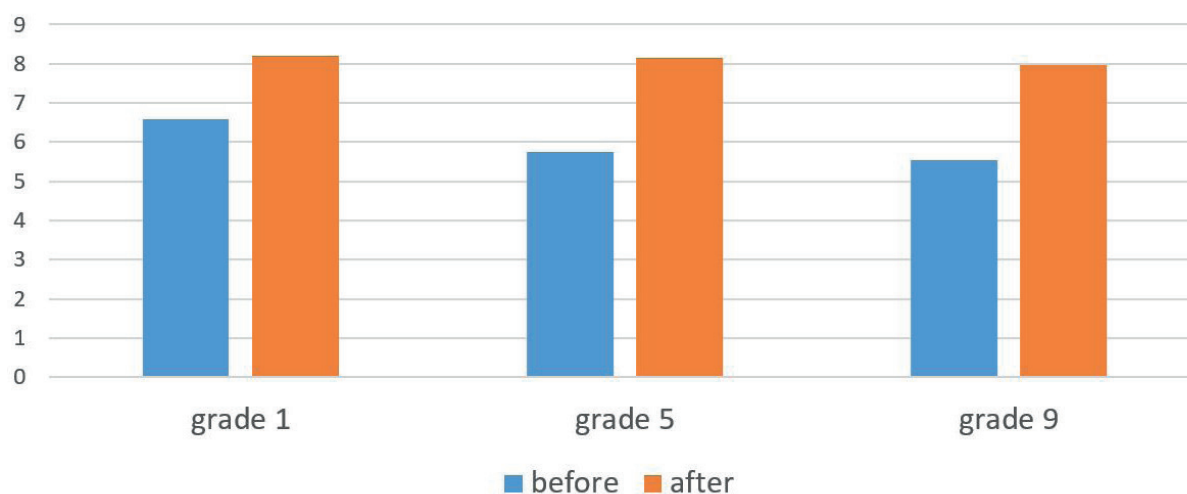## The progressive opinions of testing teachers (on a scale of 1-10)

Fig. 1 *Comparison of the experimental and the revised textbooks.* (Author)

process successfully identified the content points and didactic solutions which then proved to be problematic in practical usage. Another conclusion was that editors were subsequently able to come up with appropriate modifications to solve these problems, based on this information and the suggestions of teachers. This assessment was confirmed by teachers' statements reflecting on experimental textbook development as a whole. Some examples:

"Finally, we can see an example where the opinions of the colleagues truly mattered and students will now receive a higher-quality, more easy-to-use book in September".

"The nationwide expansion of textbook evaluation is useful because it allowed the process to include feedback reflecting on teaching various types of students (with different social background, skills, etc.). Reasonable changes and the consideration and integration of feedback were all implemented. Thank you for that".

"I am happy because it seems that our evaluation work was useful, our ideas and suggestions were not met by deaf ears. As far as I can see, the developers clearly implemented the changes that we suggested during the testing process".

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How secondary school teachers organize their own resources?

Elements of conceptualization and presentation of some results

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Abstract

This article presents an ongoing PhD dissertation on the individual activity of organizing resources by secondary school teachers. It is an activity that is largely transversal to all human activities, so this question crosses old concerns, which have only just been reactivated by IT and the Internet. In addition to the plethora of existing tools that can support this activity, new digital resource management tools are also available. In parallel with this offer, a new offer of educational resources is also being developed. Based on the ReVEA project (2014–2018), the researches conducted in the field of Personal Information Management (PIM) and the work of Glushko (2016) – from whom we borrow the concept of an "organizing system" – we were able to develop first elements of conceptualization. A qualitative investigation conducted in a high school allows us to state the hypothesis that the teachers' material organization plays an important role in the process of knowledge construction. This organization allows them to act on their environment as professionals of teaching in the making and in development.

Keywords: activity of organizing; organizing system; resources management; personal information management; educational resources; secondary education; high school teachers

1   Introduction

The purpose of this article is to present the main lines of a current PhD dissertation on the question of the individual activity of organizing educational resources[1] by teachers. More specifically, it is a question of studying how teachers store, file and archive the resources they need to prepare courses, and what tools they use to carry out these different actions.

This question is poorly documented by research. Probably because it appears to be trivial, and we may wonder what the links are between this activity and teachers' pedagogical practices.

We propose here to open up some lines of thought, and to discuss the first elements of conceptualization resulting from the research carried out within the framework of the ReVEA project and in the field of *Personal Information Management* (PIM), as well as the work of Glushko from which we borrow the concept of an "organizing system". The results and analyses of this work will be supported by the results of an empirical research conducted as part of the PhD.

2   Teachers' work around resources

A new way for teachers to prepare lessons?

Our PhD dissertation is based on the ReVEA project, a French acronym for Live Resources for Teaching and Learning. This project was funded by the National Research Agency and ran from 2014 to 2018. Its objective was to document the modes – individual and collective – of production, selection, appropriation, dissemination and sharing of educational resources by secondary school teachers in the following

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[1] To define what we mean by "resource", we can rely on the definition proposed by Glushko (2016) and those developed in the framework of the ReVEA project (2014-2018). To Glushko "Resource has an ordinary sense of anything of value that can support goal-oriented activity. This definition means that a resource can be a physical thing, a non-physical thing, information about physical things, information about non-physical things, or anything you want to organize. Other words that aim for this broad scope are entity, object, item, and instance. Document is often used for an information resource in either digital or physical format; artifact refers to resources created by people, and asset for resources with economic value. [..]" (Glushko, 2016: 1143). One of the objectives of the ReVEA project was to reconceptualize the notion of "educational resource" defined as a tangible and objectifiable material entity, and updated by the teacher's practice.

subjects: English, mathematics, physics and chemistry, engineering and biology.

The project was based on two assumptions. The first is the changes due to the transition from paper to digital. This can result in an increasing responsibility of teachers concerning educational resources, notably due to the multiple resources that can be found via the Internet. The second assumption is the fact that the environment plays an important role that can lead to new or renewed forms of pedagogy.

Four central process on resources' management

The investigations in the ReVEA project have highlighted four process that seem to be very central of teachers' activity on resources:

> The first process is the creation of a **collection** with the items (material and digital) that teachers collect all along the career and that they organize.

> The second is the **inheritance** of resources carried out during initial training or in the first years of teaching and often from peers, in particular the immediate colleagues.

> The third process is the development of **trust networks** that are both material: sources considered as relevant (works or websites) and human (peers or companies).

> And finally the fourth process is the **participation** in networks and collectives, within or outside the schools.

These results have enabled us to identify lines of thought on the activity of organizing resources within the teaching profession: How does the teacher organize a heterogeneous collection of resources? What is the role of peers in expanding this collection? Are networks and collectives prescribers of organizational methods?

To enrich these first conceptual benchmarks on organizational activity, a literature review was carried out in the field of *Personal Information Management* (PIM) and supplemented by the work of Glushko (2016).

3   The activity of organizing

The field of the Personal Information Management (PIM)

The investigations on *Personal Information Management* (PIM) analyze how individuals organize or maintain their own resources at both personal and professional life, for future or repetitive uses. The researches began in the' 80s, "[…] in the midst of general excitement over the potential of the personal computer to greatly enhance the human ability to process and manage information" (Jones & Teevan, 2007:3), and are mostly realized in USA and oriented Human Machine Interface and related tools.

The study of this work reveals three problems related to information. The first concerns the overabundance of information. This problem is not only related to the large amount of information to be processed on a daily basis, and the many resources available, particularly on the Internet, but also to the fact that personal spaces are voluminous. The second problem concerns the fragmentation of information, i.e. the fact that it is available on several devices, on several supports and in several places. Finally, the last problem concerns the temporality of information – ephemeral, in progress or archived – that leads to different management strategies.

Concerning especially the teachers' personal information management, Diekema and Olsen (2012, 2014) conducted one investigation which is result in the publication of two articles around a question: understanding why teachers did not make much use of digital libraries? They conducted interviews from 24 primary and secondary teachers, but they analyzed the results in 2012 about the question of relevance of the information, and in 2014 about the organization of their personal resources.

The results of Diekema and Olsen revealed three important points about teachers' work on resources. The importance of the role of peers in resource sharing. The importance of educational and pedagogical contexts by emphasizing that information needs are driven by the curriculum, that the relevance of information is assessed according to students, or that resources are classified according to chapters in the textbook. Finally, Diekema and Olsen pointed out that the teacher's information environment is rich and voluminous, consisting of both paper and digital resources.

Because of the questions it raises about the activity of organizing and the identification of information management practices, the field of researches on PIM makes it possible to develop a framework for thinking the activity observed according to its component actions: finding, keeping, arranging and refinding. The researches on PIM also make it possible to develop a methodological framework based on the interview guides, and the observations and experiments carried out on the working environment and individual practices: interviews to explain an action, observation of the places where the activity takes place, or even tools used by individuals.

The concept of "organizing system"

We also mobilize the works of Glushko, which the findings echoes with the researches on PIM. Glushko develops the idea of a discipline of organizing.

According to him, organizing is both a fairly common activity of daily life and a professional activity which takes place in many disciplines and domains. To Glushko, individuals organize physical and digital things, but also organize information about physical or digital things.

So, to better understand the organizing activity, he proposes the unifying concept of "organizing system" which are described as an intentionally arranged collection of resources and the interactions they support.

By comparing and contrasting the way in which these activities take place in different contexts and domains, it is possible to identify organizational models.

Thus, we can deduce that there would be, not a method, but rather frameworks to follow, a set of questions to ask before any organizational approach, with the objective of understanding the different process at work when we develop an organizational system. This is why the second to last chapter of *The Discipline of Organinzing* (Glushko, 2016), proposes a roadmap. Thus, if the question of organization is transversal to many fields, it must concern teachers, on an individual level, and the school, on a professional level.

We leaned on the work of Glushko to develop an observation grid of the information infrastructure of a school considered as an organizing system. The objective of such a grid was to be able to understand how this system works, which not only provides resources for teachers, but also devices, tools and materials, and is equipped with specific equipment and furniture. How does this environment impact the material organization of teachers?

3   The individual activity of organizing resources by teachers: investigation within a school. Investigation field and methodology

Investigation field and methodology

An ethnographic investigation was conducted in a high school in Paris area. A teacher we know introduced us to the school. Three waves of interviews were conducted between 2016 and 2018.

The first wave of interviews took place in December 2016, shortly after the start of the PhD, and aimed to conduct exploratory interviews in order to better understand what the activity of organizing resources means for teachers.

The second wave of interviews took place from October 2017 to February 2018. This period also corresponds to a period of observations in the high school. The objective was twofold: to enrich our first corpus of interviews in order to consolidate our first reflections on organizational activity; and to observe the practices in a professional context within the organizational system which is the school. Are there any links between the personal organization of resources and the organization of the school?

Could we observe infrastructure effects depending on the equipment and devices available? If so, how the teacher's personal environment — made up of his or her own tools and resources — is articulated with this professional environment which offers specific materials and resources? How do teachers pass from one environment to another? Are they only aware of the resources and tools available within their institution? Are they similar to the ones that they own and use?

Finally, the third wave of interviews began in March 2018 with the objective of documenting teachers' practices in their home in order to observe their own organizational system, i.e. their personal work environment and the equipment they have at their disposal: paper and digital resources, computer, library ... We asked the teachers who agreed to receive us to show us their resources and explain their organizational methods.

Number of teachers interviewed..	... on:
10 teachers	The management of their personal resources
3 teachers	The management of the storage cupboard of their discipline's resources
4 teachers	The management of their personal resources, and the management of the storage cupboard of their discipline's resources
1 physics and chemistry teacher, with the laboratory technician	The management of the physics and chemistry laboratory and the life and biology laboratory.
1 English language teacher	The management of his personal resources, and the management of the ' storage cupboard of the languages teachers' resources. I also observed the teacher, on his invitation, during one lesson-hour.
1 history and geography teacher	The management of his personal resources. I also observed the teacher, on his invitation, during one lesson-hour.

Tab. 1 *List of interviewed teachers.* (Loffreda, 2017)

Three teachers were interviewed, and the interviews are being transcribed.

This investigation allowed us to observe and interview 23 teachers; the following table specifies the number of teachers interviewed and on which practices. Three informal interviews took place in the teachers' room where the teachers expressed me spontaneously their reflections on the material organization of the high school.

Interviews were also conducted with the head teacher, the school administrator, the person in charge of the IT maintenance and computer equipment, and the head of the teachers for engineering and biotechnology disciplines.

Presentation of some results

General data on the establishment

Concerning the high school, the figures given by the person in charge of the IT maintenance and computer equipment inform us that 138 teachers work in the high school, which has between 1100 and 1500 pupils.

The high school has 67–70 classrooms, 34 of which are called "mixed" classrooms because they are equipped with 19 computers, including a computer for the teacher, and a printer.

These "mixed" classrooms were described as being "neither convenient to work with computers nor for to give lessons". Concerning equipment of computers and tablets, teachers have 15 computers (PCs) in the teachers' room, into three specific rooms. Physics and chemistry, biology, and biotechnology laboratories are also equipped with Pcs. Still concerning computer equipment, the school provides laptops, "which are hanging around here and there", history and geography teachers have 10 Windows tablets, and finally the school library has about ten iPads.

The school administrator tells us that the high school has 60 classrooms all equipped with a video projector.

The material organization of the high school's resources and its impact on the teachers' practices

On the question of how resources are organized within the high school, we were able to identify some infrastructure effects. They are due in particular to the school building renovation. The classrooms have been reorganized, and the old storage cupboards and lockers are replaced for new ones with smaller capacities. These changes have forced some teachers to sort and throw away resources, such as English dictionaries or old paper Atlases, now available online or in digital format.

Other teachers had to organize themselves differently to manage the material. This is the case, for example, for languages teachers with the suitcase of portable media players for podcasting. As the suitcase can no longer be stored in the languages teachers specific classroom, it is now stored in the storage cupboard in the teachers room, but it only hold in an upright position. However, this position, because of the weight of the portable media player, ends up damaging the sockets, which can no longer fulfil their function, forcing teachers to define schedules for rotating the suitcase in order to take the time to recharge the portable media player; the teachers had to ask for the purchase of a new suitcase.

These few examples are not only part of the hazards of everyday life, they also testify to the importance of the information infrastructure, which is not without influence on the conditions of teachers' professional practices. Equipping schools without knowing these conditions can constrain activities rather than support them.
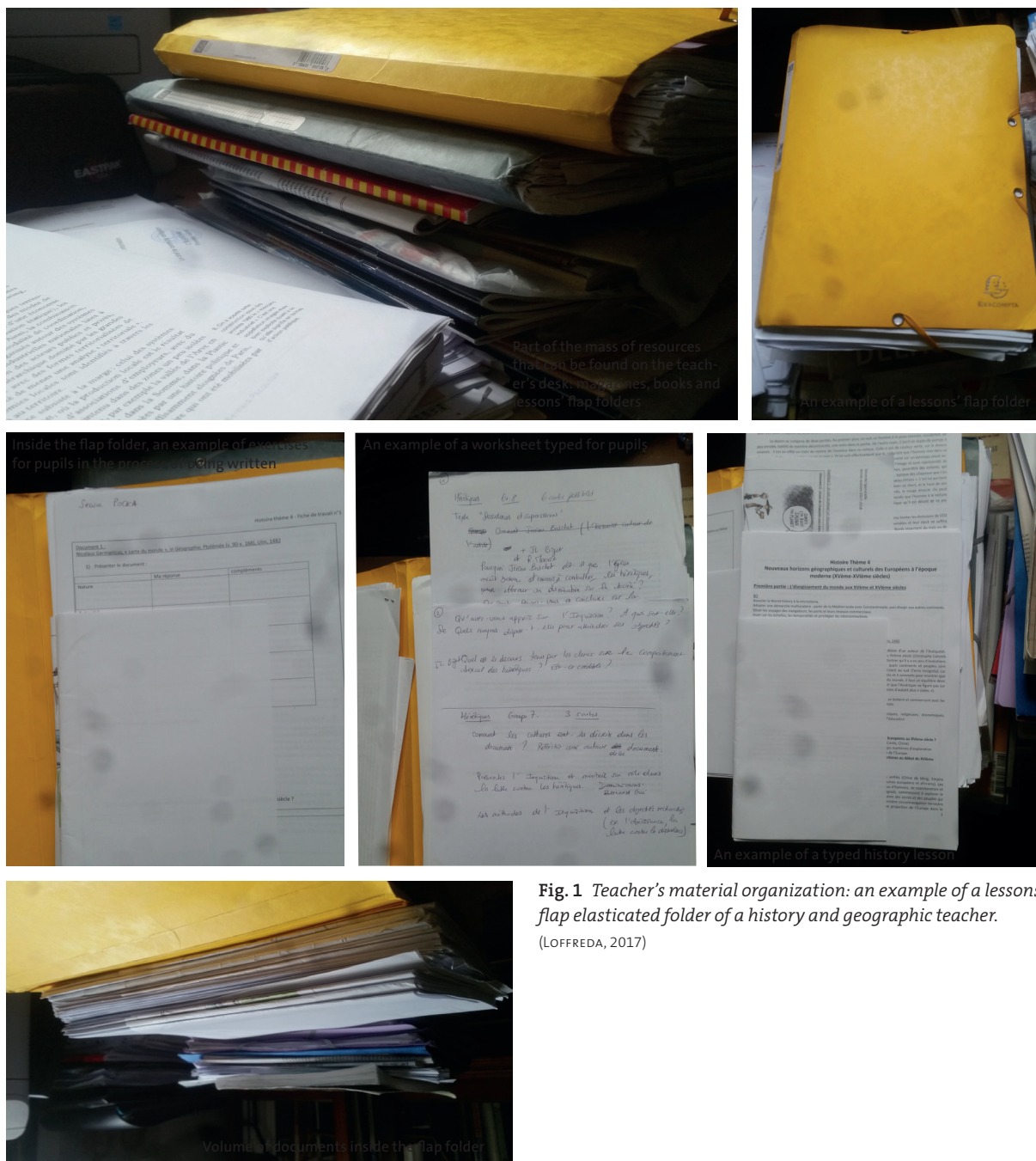
Fig. 1 *Teacher's material organization: an example of a lessons' flap elasticated folder of a history and geographic teacher.*
(Loffreda, 2017)

How do teachers organize their resources?

Concerning the individual activity of organizing resources by teachers, our initial results revealed a number of similarities with results of the researches conducted on *Personal Information Management* (PIM) and the ReVEA project.

For example, with regard to the classification of resources, we have identified a tree structure linked to the educational context and the programme: files classified by school year, class, course or according to the theme being addressed. More specifically, with regard to teachers' behaviour in terms of organizational activity, we can highlight a positioning with regard to a supposed norm (being "messy" versus being "organized"), as well as an emotional relationship with certain resources, particularly those inherited from peers; hence the difficulties to throw away. Finally, we can also point out that the informal environment of the teacher is made up of paper and digital resources.

Concerning the material organization of teachers – of which we will give some examples here – our initial results show that it is based on a vast set of tools, with an important place for paper tools that reaffirms the superposition of existing technologies and continuity in uses. Thus, to prepare the courses,

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the use of a notebook is superimposed on the computer, as is the case with two teachers, one of whom declares that he uses a "preparation notebook", and the other that he needs go through the written form to develop his ideas of lessons plan. This teacher also tells us that the notebook allows him to keep track of his thoughts, to go back easily on his ideas, but also to slip documents inside: "I win on the organiza-tion side". Another example of the use of very varied tools that superimpose paper and digital technology concerns the storage and transport of resources: teachers use "part organizer files", "flap elasticated folders" (see photos below) or "presentation display books" to manage their paper documents (lessons, homeworks..) and hard disks or USB keys for their digital or computer resources.

4 Conclusion

The activity of organizing intersects with old reflections, especially concerning the construction of principles and representations tending to standardize the management of documentary, cultural and professional spaces (libraries, museums, offices..) but also of living spaces (domestic organization, household maintenance).

Nowadays, the upheaval in the production, circulation and use of information following the development of IT and Internet has reactivated these issues, particularly in terms of standardization of practices.

With regard to teachers, the supply of resources currently developed by the Education Ministry as well as those offered by educational publishers and industrialists who develop platforms with resources scripted in the idea of turnkey courses, or also in form of grains in which the teacher can draw to build his own scenario, are consolidated around speeches aimed at relieving the teacher, in part, of the tasks that would seem to weigh on his activity, such as the preparation of lessons, the correction of evaluations, or the management of resources. The time thus optimized would allow them to focus their attention on the students' learning.

It is to deny that the teaching profession is structured according to tasks inscribed in a specific ecology. In this ecology, the teacher's material organization is not limited to trivial, mechanical or repetitive tasks, but plays an important role in the processes of appropriation and construction of knowledge. Without an understanding the structure of this activity, there is a risk that the teacher, through the prescription of tools, software or resources, will be deprived of the means to find and organize by himself the resources allowing him to fully appropriate his profession.

We make the hypothesize that is through the activity of organizing that teachers appropriate knowledge and can thus act on their environment as professionals in the field of teaching in the making and in development.

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Teacher training on the use of textbooks[1]

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Abstract

Teacher training is often discussed at international conferences, in order to understand whether it meets the everyday needs of teachers. The training has to be diverse and include many specializations. Among other aspects, it is important to know whether teachers have received training in the use of didactic materials. Therefore, the central objective of this study is to find out whether teachers — in their initial teacher training —r eceived adequate preparation to be able to adequately maximize the use of textbooks and other resources. Through a quantitative methodology, questionnaires were applied to teachers of Music Education in the thrid cycle of basic Portuguese education, in the north of the country. The conclusions show that the academic qualifications of Music Education teachers vary considerably between undergraduate and masters degrees, professionalized by academic training or professionalization in service. In addition, it finds that whether in their initial or in-service training, teachers receive practically no training regarding the use of textbooks. In general, teachers often train themselves and are not trained through services linked to the ministry of education and which often stimulate school-based training actions.

Keywords: Textbooks, Basic education, Teacher training, Music education.

1   Introduction

The lack of training in using textbooks is a fundamental problem for teachers who do not have the skills to develop appropriate strategies and attitudes for their work. Textbooks are the portrait of the teaching activity and therefore are also an integral part of the school space. Teachers can reduce the alienating power of textbooks and can transform critically the curriculum that is contained within them. In addition, the elements associated with some textbooks, such as illustrations, CDs and accompanying digital materials, are extremely positive when related to the material created by teachers themselves (Nicolás, 2010).

Initial and continuous teacher training is an irreplaceable vector in professional development because it functions as a means of increasing teachers' knowledge and skills. The autonomy and responsibility of a professional cannot be understood if one does not consider their abilities and take into account their individual experiences and competences. In this way, training institutions must adapt their programmes to the way teachers' work, these planning functioning as measures of evaluation of their professional practice (Perrenoud, 2007).

It is important to be aware of the need for continuous training as a premise for better schools, given the complexity of professional knowledge required, which depends on the knowledge of many others — and specifically in the field of music, which requires musical, pedagogical and didactic knowledge. Based on these facts, the research goal of this study is to find out what training teachers receive on using Music Education textbooks.

2   Literature Review

One of the most complex themes of teacher training is that of textbooks, where subjectivity plays an extremely relevant role. As the educational resource that is followed by the majority of teachers, textbooks require reflection and research about the criteria for their development, selection and use

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[1] The results presented in this study are a small part of a larger project that was the subject of a PhD thesis on textbooks in Education Sciences at the University of Vigo (Spain) in 2016.

(Duarte, 2012). In this way, it is possible to think about the textbook not only as a mean of communication but also about the educational activities or learning that can come from it.

Teacher training regarding textbook use, both in an academic context and in the context of continuous professional development, has received little attention from researchers. It is therefore necessary to know the state of teacher instruction in order to be able to train teachers to reflect on and analyse their own practice.

Teachers' use of textbooks differs according to their degree of professional autonomy (García Pascual, 2004) and this has repercussions for how students use them. This is not an easy question to discuss, but it needs to be addressed with care because it clearly needs attention from research in education and particularly regarding teacher self-training (Del Carmen & Jiménez-Aleixandre, 2010).

Teacher training in music can follow three guidelines: first, teachers should understand the importance of the meaning and value of music; secondly, the focus on aspects such as ear training, rhythmic gymnastics, a repertoire of songs, dances, games and improvisation; and finally, the introduction of musical games and dances in day care centres following specific methodologies and indications of textbooks (Anderson, 2017). If we want good mu-

sic teachers, it is necessary to offer them training opportunities as musicians without forgetting a balance between pedagogy and the aspects of psychology that are necessarily implied in any teaching activity independently of the subject (Mota & Figueiredo, 2012).

The speed of change that modern society imposes requires reflection on the education of educational leaders. Teacher training is a process that can be transformed according to the needs of the different contexts that teachers face each school year. However , music teachers' training is also one of the challenges of contemporary education (Romanelli, 2013), with the main objective of making these professionals more and more competent as educators.

Although research in the field of Music Education has been incipient , in recent years a major breakthrough has been experienced (Díaz, 2010). The theme of Music Education studies in a globalized world is still little approached (Folkestad, 2005) compared to what could be fostered if music teaching professionals were involved in research. If countries want to enjoy the financial exploitation of music, they need to ensure that people receive specialized education in order to develop the capacity to become active actors (Area, Parcerisa & Rodríguez, 2010).

3   Methodology

The present research is part of an extensive study with a double methodological approach (quantitative–qualitative) and a triple viewpoint for data collection (teachers, students and document analysis). Only one part of the study was selected for this contribution, which follows a quantitative methodology by applying a closed questionnaire to the teachers.

Contextual approach

As a process of contextualization, it is important to refer to some aspects of music teachers' training for so-called non-vocational teaching and in the current framework of the Bologna process. Music Education teachers began to receive specific pedagogical training only in 1986 with the opening of the Higher Education Schools. In these, for a period of four years, the teacher obtains a degree in education with the specialisation of Music Education. This training, in practice, empowers the teacher both to be a general teacher of the first cycle of basic education and

to be a specialist teacher of music education in the second cycle of basic education. Thus, it can be said that Portuguese teachers of music for school education are trained in institutions of higher education, and in addition to a degree in music they also require training at the level of a professional masters degree. It should be noted that there is a requirement to perform pre-requisite tests in the specific music field to get into these higher education institutions.

Sample study

The sample for this study was defined under a quota method. We used a non-probability sampling, considering the whole population of the subject of Music for the third cycle of basic education (students from 12 to 15 years old). We received 129 valid responses from the five Regional Direction of Education corresponding to the five sections created by the quota sampling method. To define the sample, the total number of teachers teaching music in the

third cycle of elementary education in Portugal was selected. In this way, the North had the highest participation with 37.21% of the sample, followed by Lisbon and Tejo Valley region (35.66%). In the central region we had 14.73% of responses, while in Alentejo and Algarve we had 5.42% and 6.98% respectively.

Regarding the teachers, the objective was to analyze the entire population who teach the subject of Music Education in the third cycle of basic education in all Directorate Regional Education (DRE)[2] in Portugal.

The whole population of teachers to be surveyed thus included the five services departments of mainland Portugal, in a total of 264 public schools where Music Education is offered as a subject in the third cycle (**Tab. 1**).

DRE	All teachers		Teachers to inquire	Teachers surveyed		Response rate
	n	%	n	n	%	%
DREN	75	27.37	44	48	37.21%	108.92%*
DREC	67	24.45	39	19	14.73%	48.26%
DRELVT	99	36.13	58	46	35.66%	79.08%
DREALE	14	5.11	8	7	5.43%	85.09%
DREALG	19	6.93	11	9	6.98%	80.61%
	274	100.00	161	129	100.00%	80.12%

* This value arises because there were 4 more responses in the DREN than the 44 required which were considered in the data treatment.

Tab. 2 *Questioned teachers and their proportion to the respective region of Portugal.* (Authors)

Data analysis

The data study was made by a general and inferential descriptive analysis for the different applied questions. Version 20.0 of the *software* SPSS was used for the data treatment. The results of the questionnaires to teachers include the analysis of the absolute frequency (n) and percentage of responses (%) of each participant.

In addition to the questions of teacher identification, questions were also asked relating to the training that teachers had received or obtained during their professional experience (**Tab. 3**).

Regional Directorates of Education (DRE)	Schools with music in third cycle	Existing teachers	
		n	%
DREN	71	75	27.37
DREC	65	67	24.45
DRELVT	95	99	36.14
DREALE	14	14	5.11
DREALG	19	19	6.93
Total	264	274	100.00

Tab. 1 *Number of participating teachers by region.* (Authors)

It was not possible to reach a sample with the initially defined scope of 161 teachers, since only 129 teachers responded to the questionnaire. This also led to an oversized sample of teachers from the northern region (with a proportion of 37.21% compared to the 27.37% initially defined), and by contrast, an undersized sample of teachers from the central region (with a proportion of 14.73% of the whole sample, against the 24.45% initially defined). For the remaining regions, the proportion of the quota in the whole sample compared to the one initially determined (**Tab. 2**).

1. Indicate whether in your training…
1.1. … at the university, you had specific training on textbooks for Music Education.
1.2. … working as a teacher, you have already worked on how to "optimize the use of textbooks" of Music Education.
2. If you answered yes for 1.2, indicate whether it was for…
2.1. Training by the Ministry of Education
2.2. Self-training

Tab. 3 *Questions about training.* (Authors)

4 Results

In this section, we present the results of the quantitative analysis of the questionnaires administered to the teachers. The results regarding personal profile data show that the average age of the participants is 45 years old. The youngest is 33 years old and the oldest is 58. Regarding academic qualifications, most of the teachers had graduate degrees only (n=72), followed by teachers with Masters and Bachelor degrees (n=25 and n=24 respectively) and only five teachers with post-graduate degrees.

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[2] Directorate Regional Education from the North (DREN), Directorate Regional Education from the Center (DREC), Directorate Regional Education from Lisboa and Vale do Tejo (DRELVT), Directorate Regional Education from Alentejo (DREALE); Directorate Regional Education from Algarve (DREALG).

Regarding professional profile data, most teachers have more than 20 years of service as a teacher. Most are career teachers (n=113) compared to those who with only a regional affectation (10 participants) and those who are hired teachers (n=3). The majority of teachers are female, and are professional by academic training (n=62) or by professionalization in service (n=63), which is a balanced ratio.

The first question asked was whether the teachers had received specific training on Music Education textbooks at university (**Fig. 1**).
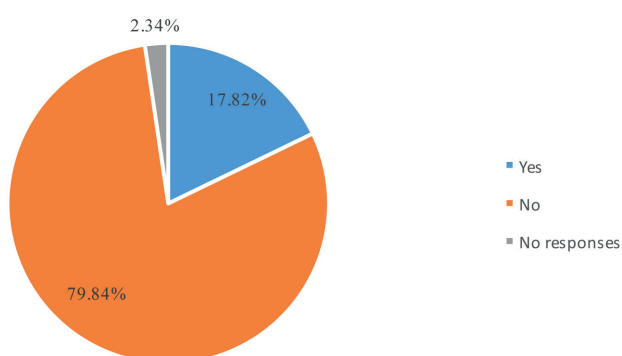

Fig. 1 *Teachers trained at the university.* (Authors)

Another question asked whether in their continuous professional development as a teacher, they have already worked on how to optimize the use of music education textbooks? Based on 95 teachers, corresponding to 73.64% (**Fig. 2**), most have not. It is worth mentioning that 26 teachers (corresponding to 20.16%) answered affirmatively that they had received this type of training on how to optimize the use of the textbooks.
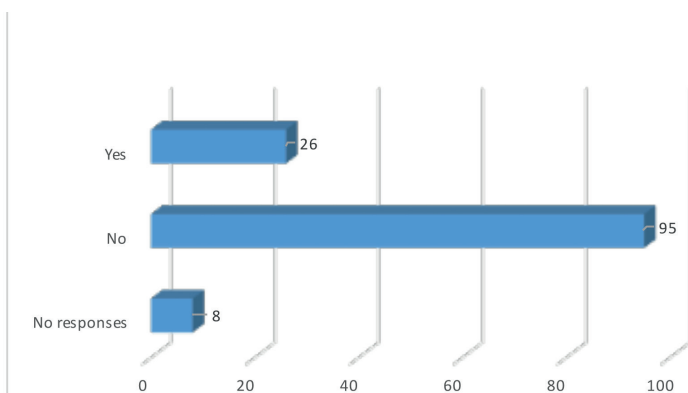

Fig. 2 *Teacher training on how to optimize the use of textbooks.* (Authors)

And finally, to those who answered yes to the previous question (26 participants), we asked whether the training was promoted by the Ministry of Education or whether it was self-study (**Fig. 3**).
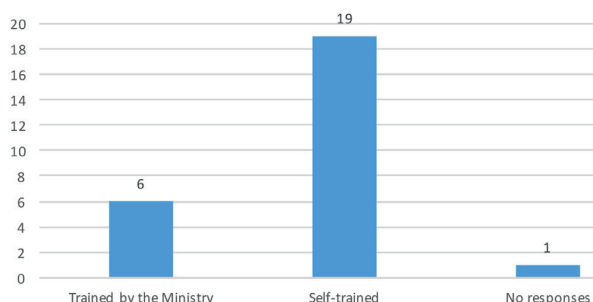
Fig. 3 *Training on optimizing the use of textbooks by: self-study or trained by the Ministry.* (Authors)

Unexpectedly, 73.07% of the answers (19 teachers) reported self-study only, compared with 6 teachers who had received training on textbook use by the Ministry (corresponding to 23.07%). It should be noted that for this question there was one no-response.

Among the results of inferential statistics, there was a significant association between the use of the textbook and years of service (t = -2,45, p <0.05). So, the use of textbooks is more frequently associated with teachers who have more years of service (**Tab. 4**).

Lengh of service	Use the adopted texbook				t	p
	No (n=29)		Yes (n=72)			
	x̄	s	x̄	s		
	17.48	6.401	21.18	7.032	-2.45	0.02

Tab. 4 *Relationship between use of the adopted textbook and the length of service.* (Authors)

The regularity with which the adopted textbook is used during class is significantly correlated with the years of service (r_s = 0.20, p <0.05). The higher the number of years of service the greater regularity with which teachers use the adopted textbook during the lessons (**Tab. 5**).

Length of service	Adopted textbook in class preparation	Adopted textbook during the classes	Other Music Education textbooks in class preparation	Other Music Education textbooks during the classes
	0.15	0.20*	-0.09	-0.16

n=116, *p<0.05

Tab. 5 *Spearman correlation between years of service and regularity of textbook using.* (Authors)

Ask students to use the Music Education textbook	Initial training							
	No (n=57)			Yes (n=14)				
	x̄	Md	MR	x̄	Md	MR	U	p
1. For students to consolidate their knowledge	4.07	4.00	56.67	438	5.00	63.95	862.00	0.34
2. To provide activities	3.93	4.00	57.02	4.09	4.00	62.40	894.50	0.48
3. To help with study	4.12	4.05	58.10	4.23	4.00	57.55	977.50	0.94
4. To respond to diversity in class	3.69	4.00	55.19	4.19	4.00	70.57	723.00	0.05
5. To ask students questions about textbook content	3.66	4.00	54.62	4.28	4.00	73.14	669.00	0.02
6. Overcoming the lack of material prepared by the teacher him/herself	2.78	3.00	54.31	3.57	4.00	74.52	640.00	0.01
7. Overcoming the lack of material prepared by students	2.97	3.00	54.64	3.71	4.00	73.02	671.50	0.02

Tab. 6 *Relationship between asking students to use the textboook and conducting initial training.* (Authors)

The relationship between the completion of specific initial training and the use of textbooks is only significant for the regularity with which teachers request the textbook to respond to class diversity (U=723.00, p<0.05), to ask students about the textbook contents (U=669.00, p<0.05), to overcome the lack of material prepared by the teacher him/herself (U = 640.00, p <0.05) and to overcome the lack (U = 671.00, p <0.05), which are all higher than the regularity of requests by teachers who had received initial training on the textbook (**Tab. 6**).

8   Discussion and conclusions

The main conclusions of this study indicate that Music Education teachers have little access, either in their initial or continuous training, regarding the optimization of the use of textbooks. In addition, in general, the training courses attended by the teachers takes place on their own initiative and not through services linked to the Ministry of Education.

The academic qualifications of teachers vary considerably between undergraduate and masters, professionalized both by academic training and professionalization in service. Teachers without adequate training are unable to motivate their students to use the textbook. This power to train the teachers of Music Education in general basic education (the non-specialized one) has been given by the Higher Education Schools of the Polytechnic Institutes.

The conclusions of the present study show that the more years of experience teachers have, the more importance they attach to the use of the textbook. Teachers who have had specific initial training on how to use the textbook more regularly request this resource to respond to diversity in class, to get questions about content, and to overcome the lack of material created by them. It is recognized that the use of textbooks is considered more important to provide activities to students by teachers who have not trained on how to make optimum use of this resource.

Teaching is a profession that has acquired great complexity because of the urgent need to constantly keep up date to meet the demands of the knowledge society. Music should work as another way of fostering learning, to understand and improve educational practice: a good music teacher should be able to reflect honestly and critically on his or her work, conscious of their strengths and weaknesses and thus contributing to their own professional development. It is notable in this respect that self-evaluation is a periodic process about the competences themselves , which the teacher should carry out (Giráldez, 2010).

To conclude, teacher training on musical textbooks is a rarely studied subject even though Anderson (2017) refers to it in the Brazilian context . If teachers receive only academic training, there is a gap regarding textbooks. Continuous professional development training should therefore be further developed, as Del Carmen & Jiménez-Aleixandre (2010) and Pérez González (2012) recommend in the Spanish context and Romanelli (2013) in Brazil. Teacher training in Music Education should therefore provide teachers with these additional skills and knowledge.

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The selection of textbooks by educators of settlement schools: criteria, dialogues and tensions

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Abstract

This article reports the results of a research that analyzed the processes of textbook selection in countryside schools by educators of schools located in Agrarian Reform Settlements, in southern Brazil. It presents the Countryside Education and Rural Education as two distinct paradigms of education for the Brazilian countryside. It assumes the concept of social construction of the school and analyzes the conditions in which the textbooks are chosen, the criteria used by the educators and it establishes relationships with the coexisting education proposals in the school. The information was collected via questionnaires and interviews. The analysis showed that the changes in the specific textbook program for countryside schools lead to a reduction in the participation and autonomy of educators in the choice of the textbooks; the presence of different educational proposals establishes tensions, reducing the presence of the Landless Workers Movement (MST) propositions and strengthening official proposals of the Municipality and the Federal Government; the criteria pointed by the educators value the presence of the reality of the countryside in textbooks, but also the presence of universal knowledge.

Keywords: Textbook selection, Countryside schools, Settlement schools, PNLD.

1   Introduction

The article reports results of the research on the processes of choice of textbooks by educators of Settlement schools, held in the Municipality of Abelardo Luz, State of Santa Catarina, in the South of Brazil. Schools are located in Land Reform Settlements resulting from land-based struggles, especially by the Landless Workers Movement (MST) during the 1980s and 1990s.

The central theme of the research is the process of textbook selection, by educator, in the National Textbook Program. In particular, the focus of the research is the **National Textbook Program – PNLD Countryside**, and the intention was to understand the relationships between the processes of choice and the educational proposals that organize school-work in Settlement schools.

In Brazil, public schools receive free textbooks from the National Textbook Program (PNLD), which evaluates and purchases them, after schools choose them. The Program is based on the National Curriculum Parameters produced in 1997, which indicate the general themes to each school subject, methodological suggestions and main approaches to the curricular development. The publishers and the authors must consider the orientations and the complementary laws – such as the Law 11.645/2008 on the mandatory inclusion of the Afro-Brazilian and Indigenous history and culture in the curriculum.

As of 2011, a program – PNLD Countryside – which buys books specially made for rural schools, located in rural areas was created. In spite of the fact that the National Curriculum is the same for urban and rural schools, some orientations are different for the textbooks aimed to the rural schools; as an example, we could refer the proposal of multidisciplinary textbooks that is not a tradition to the urban schools, a decision that affects the organization, the amount and characteristics of contents in each textbook. As a consequence of this, the PNLD Countryside generated different situations in the production, evaluation and choice of books, which place new demands on the researchers who dedicate themselves to the theme.

The research, when analyzing schooling and its elements, including textbooks, starts from the assumptions and propositions of Countryside Education and the MST Education project, proposing a dialogue with the concept of "social construction"

of the school presented by Rockwell and Ezpeleta (2007). In this perspective, the authors understand that although educational laws and social structure partly define the construction of the school, there is also the action of the subjects that seek to transform it.

Contributions by Schmidt and Garcia (2008) reaffirm this perspective, in which the school is understood "not only as a place of reproduction but also of creation, of production". Thus, people's participation in the construction of the school routine is highlighted, in which it is partially possible to surpass the structural determinations, where educators and students are able to make decisions, create alternatives in a collective and participative way (Borowicc, 2016, 48).

The research is justified by the need to understand the processes of knowledge construction in the space of rural schools, in settlements of the agrarian reform areas, based on the assumption that the didactic book is one of the main sources of printed information existing in the school, often assuming a central role in the educational process.

Teaching in Settlement schools is organized based on different pedagogical proposals and guidelines from the MST, local government and the federal government. As a social movement, the MST has produced a set of documents to guide the schools to a critical education, based on the reality and needs of the rural people, and as a part of their strugle to conquer land.

Other orientations come from the local educational system through the official curriculum that defines the contents and procedures in each school subject; in the case studied, the curricular proposal was produced with the participation of teachers, to be used by both urban and rural schools. The federal government influence on the curriculum could be identified in some specifics programs which affect teaching conditions, such as the "National Pact of Literacy at the right age" (teacher education and special didactic materials to teach early years) and the National Textbook Program (which defines criteria to produce textbooks to the public schools).

Thus, it becomes necessary to understand the ways in which they are articulated in the work of educators, especially when they get in touch with the books of the National Textbook Program.In this sense, the research problematizes the real space of production of the curriculum, in the perspective of Goodson (1995), since it approaches the school life to know the conditions in which the school experience is performed, especially in its dimension related to the teaching.

From these elements, the research sought to analyze the processes of choosing specific Didactic Books for schools of the Countryside by educators of schools located in Agrarian Reform Settlements, in the South of Brazil in view of the following objectives:

a) understand the conditions in which the processes of book selection take place in schools and the teachers' point of view on these conditions;

b) relate the criteria of choice to the possibilities of using the books in class, from the point of view of educators;

c) analyze relationships between the processes of choice, the criteria explained by the educators and the orienting proposals of MST school education.

2   Theoretical framework.

As a presupposition, the research assumes the concepts of the Education Project of the Movement of Landless Rural Workers – MST presented in documents produced by this movement to guide the Education in its schools. The research also assumes the concepts of the Countryside Education movement, "phenomenon of the Brazilian current reality"; this is a proposal of education created over the 1990s which has the rural people as protagonists, based on the experiences of education constructed by the social movements of the countryside (Caldart, 2012, 257).

What began timidly in the struggle for basic education has become a major movement to fight for education for rural people, broadening the understanding of the right to education beyond school spaces, from kindergarten through university, pointing out the urgency of building basic schools in the countryside, with an appropriate pedagogical proposal to that reality and the creation of specific higher education courses for the countryside people, then called Countryside Education (Caldart, 2012, 259).

Thus, the research recognizes Countryside Education as a different paradigm in relation to Rural Education. The latter was created in the 1930s with the objective of meeting the demands of industrialization in the countryside through a practice that "annuls

the knowledge accumulated by the experience of working with the land" and turns the rural people into consumers of "agricultural products generated by the importing agricultural model" (Ribeiro, 2012, 297).

This movement then turns to the struggle for quality education for the rural people, in order to overcome the old gaps of knowledge and to place their subjects as protagonists in the development of their living spaces and no longer for the industries in the city.

The research is based on elements of theories regarding the relationships between school culture and school textbooks (Forquin, 1993; Choppin, 2004), particularly the concepts related to the imperatives of didactization and its effects on the school subjects and textbooks. Another reference is the concept of the textbook as a commodity (Apple, 1995), which contributes to understanding the relations between the editorial groups and the textbook production in Brazil, considering the high financial resources applied every year by the federal government in order to purchase textbooks.

The research is also based on the National Textbook Program official documents (PNLD and PNLD Countryside). The theoretical contributions are supported on other researches from the Research Center on Didactic Publications – NPPD of the Federal University of Paraná in the countryside school (Vieira, 2013; Vieira & Garcia, 2016), particularly regarding the evaluation of the textbooks produced to the schools located in rural areas.

3   Methodology

As an empirical field, four schools located in agrarian reform settlements in the municipality of Abelardo Luz – SC were selected. Two schools have multigraded classes with 15 students each. In these schools, children from 1st up to 5th grades study in the same classroom, at the same time, with only one teacher. In the other two schools there is a total of 350 students separated in classrooms according to each grade, with one teacher per class.

As participants of the research, there were 9 educators who taught the early years of primary education in these schools. For the development of the empirical study, three research techniques were used: Questionnaires and interviews with the teachers; analysis of textbooks, official documents such as the school curricula and the Guidelines of the PNLD; and participant observation as a complementary technique, which was used to follow up the process of textbook selection by teachers.

The participant observation occurred mainly during the process of choosing the PNLD Countryside 2016 books. The interviews with the educators were carried out to obtain information and identify the opinions of the collaborators on the subjects under study in order to:

a) Understand their participation in the choice and perceive possible differences between the PNLD and the PNLD Countryside;

b) Know their points of view on possibilities of relation among the many proposals of education existing in the school;

c) Identify the opinion of the educators about the existence of differentiated books for the rural schools.

The analysis of the empirical work allowed the definition of three categories that articulate the results obtained and allowed more complex answers to be given to the research questions, explaining the tensions between autonomy and imposition in the textbook selection processes and the dialogues between coexisting educational proposals in the case of Settlement schools (Borowicc, 2016).

The definition of such concepts is based particularly on Freire's conception of the role of the "social worker in the process of change", which demands in his action on reality "a deepening of his awareness of reality, a contradictory object of those who intend to keep it as it is and of those who intend to transform it" (1981, 48). In this direction, we also understand the perspective defended by the author that every educational process for transformation presupposes a work of reflective organization of thought, which depends, among other elements, on a pedagogy of communication sustained in dialogue, a horizontal relationship. For him, "Neither the ones who impose, nor those who receive, create; both are atrophied and education is no longer education " (1981: 69).

4   Results and data discussion

From the analysis made, it is possible to show the conditions in which the processes of choosing books in Settlement schools happen, the tensions between autonomy and impositions, and the educators' point of view on the subject, considering elements related to the last two choices carried out in schools, from the Ministry of Education's Notices for PNLD 2013, PNLD Field 2013 and PNLD Field 2016.

Conditions in which the Processes of Choice of Books in Settlement Schools occur: Tensions between Autonomy and Impositions

As for the conditions in which processes occur, it was possible to point out the tensions generated by the search for autonomy and by the impositions of the system:

> Time is insufficient to analyze books and discuss in school;

> Educators have difficulties both to access the Guides (available on the Ministry of Education website), because the quality of internet connection is poor, and to examine the textbooks that have been approved.

> The educators prefer to use the printed book for their consultation over the Internet book, however, they were not printed in the last choice, PNLD Field 2016;

> There are differences between the two programs, PNLD and PNLD Countryside: in the first there is greater autonomy of teachers and schools; in the second, the choice is made by the network of municipal schools, reducing autonomy in the choice and teacher participation.

There are changes slowly occurring with each new announcement, in which there are conceptions that value the autonomy in choosing the best resources for the development of the pedagogical proposal and the conception that centralizes the decision processes outside the school and imposes definitions, justified by different reasons, among them the need to standardize the pedagogical proposal to a set of schools.

The Educators' Point of View: Elements considered in the choice of books, concordances and clashes.

The educators indicated as main criteria of choice:

a) The adequacy of the contents to the curricular proposal of the municipal education network, indicated as the first and main criterion.

b) The concern to select a book that allows the dialogue with other programs and materials that they must necessarily incorporate in their classes – for example, the learning rights and the planning by didactic sequences proposed by the National Pact of Literacy in the Right Age – PNAIC, proposed by the Federal Government.

c) The adequacy to the reality of learners.

Commenting the topic, the educators said that it is positive to receive specific books for the students of the rural schools, but indicated that it is necessary to overcome some limits presented by the current books. They justify the need for the specific, since the textbooks of the previous PNLD had a very urbanized language, oblivious to the reality of the students in the countryside. However, they also question how the program was implemented and the quality of textbooks produced for it.

> *I think that as each region of the country is different and also the countryside and the city, it would be interesting, [...] each region could have didactic books that looked at the specifics of each one, as well as the countryside and the city, since our students can identify very little of their reality brought in textbooks. That is why I work more on research into other materials than faithfully following what is in the book [...].* **(Educator A)**

In the fragment above, there is a criterion of approval of specific books for the countryside: the language used in the other books, which according to the educators, was very urbanized. The students in the countryside did not identify with the practical examples and some activities.

Among the limitations presented by the educators in relation to the PNLD Countryside book received in the schools, they emphasized the fact that the books are very summarized and not as interdisciplinary as the notice requested. According to them, "there are only two or three books, in sequence, within the same cover".

The questions raised by educators point out that, similarly to what has already occurred in the history of education for rural people in Brazil, there may be a simplification of teaching contents, a loss of quality, justified in the need to the specificity of the population and the country school.

The proposition of adapting a book to the reality of the students who use them cannot underestimate their capacity nor reduce the production costs of the works; on the contrary, the production of specific works for certain populations should demand more investment.

Relationship between different Pedagogical Proposals present in Schools: the opinion of educators

It was possible to notice in the educators' answers that several pedagogical proposals influence the way in which they choose the Didactic Book to be used in the school: the Curricular Proposal of the Municipal Network of Education; the Federal Government program called the National Pact of Literacy in the Right Age — PNAIC; the need for adaptation to the reality of the students, as suggested by the MST Education Project and the Countryside Education Proposal.

The Curricular Proposal of the Municipal Network is quoted more frequently by the educators. It resulted from a process of collective construction, and therefore its constituent elements are appropriated by the educators, and most of the time they contribute to teaching, though they may generate some conflicts particularly when they are selecting textbooks. The textbooks are produced in a national level, under the PNLD orientations and criteria, and thus often do not include issues that concern to the rural population.

They claim that, it is important to work based on the education project of the Landless Workers Movement — MST and the Field Education, but explain that not all school educators understand or accept such proposals. According to the educators, this is motivated in part by the lack of knowledge about these projects, since in recent years there have been few teacher education activities. However, it is also motivated by divergence of ideas on what education in these schools should be, more progressive or conservative.

It has been noted that all schools work on the history of the struggle for land in the municipality, which is an MST orientation, but only on commemorative dates and as a rescue of identity. The aims of the social movement, the educational proposal to teaching in a critical perspective, and the valorization of the rural identity are elements that have been considered, but they are not assumed as a principle of construction of new practices appropriate to the organization of schools from the MST project.

The denomination Countryside Education, used in Brazilian legislation, is more accepted by participant teachers, appearing in the pedagogical project of some schools as guiding pedagogical work.

5   Conclusion

It is defended, in agreement with the research participants, that educators should be able to choose the book by school for the specificities of each one's pedagogical project. It is reaffirmed that an alternative to the limitations found in the first PNLD Countryside textbooks would be to strengthen the processes of production of local materials with the participation of the teachers, students and local communities according a basic principle of Countryside school education.

The lack of participation of the educators in the textbook selection process, the tensions between different proposals, the impositions by the social and educational systems are present in the school life. But dialogues have also been identified, working on the social construction of these spaces through the action of the people who appropriate the programs, norms, projects, and transform and (re)construct them.

The debates that took place during the presentation of the research during the Lisbon Conference (2017) raised questions about the need for specificity for universal contents, pointing to specificity only as to what is particular at the regional and local level; experiences from other countries, such as France and Argentina, encourage the production of studies to return the debate in the direction of proposals for the production of materials by educators and the local community that dialogue with PNLD textbooks.

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The textbook for countryside schools: teacher's perceptions and practices of students in the initial years of basic education

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Abstract

This work presents the results of an investigation that analyzed how Science textbooks are being used in countryside schools that received these materials from the Brazilian National Program of Textbooks for Countryside Schools (PNLD Campo 2016). The research was performed with teachers of initial years of primary schools, who replied to a questionnaire which contained questions about their training, the local community in which the school is located, the process of choosing the textbook, their experience in the countryside school, the usage of textbooks inside the classroom and the role that they attribute to textbooks on the student's learning knowledge.

The investigation used the theoretical assumptions of school's social construction of Ezpeleta & Rockwell (1989) as a reference, and the assumption that culture is based on a set of meanings of a determined social group. It was noticed that the local culture has a direct influence on the pedagogical actions and expectations of the teachers regarding students' learning. It was found that, since PNLD 2016 did not contemplate satisfactorily these practices and expectations, the use of the countryside textbook is considerably limited and decontextualized. In these terms, teachers have used the textbooks adapting them and integrating them with other materials. Moreover, the influence of local culture in the use of textbooks was noticed as well as the existence of gaps in the discussion of existing public policies to improve the usage of textbooks from the PNLD Campo.

Keywords: Local Culture, Textbooks, Countryside Schools, Basic Education.

1   Introduction

The discussion about the Brazilian Countryside Education has its origin in the social movements in contraposition to the former concept of rural education, and its essence "is found in the campaign for a public policy oriented by the countryside workers themselves and in the problematization of Brazilian countryside as a place of conflicts and social struggles" (Souza, 2010, p.43). Among these struggles and actions focused on educational policies, the PNLD Campo can be highlighted. It is a program that promotes the evaluation, acquisition and distribution of textbooks for Brazilian schools, emphasising the discussion about specific textbooks for specific social groups.

In the theoretical perspective assumed in this work, the school is taken as being a social construction (Ezpeleta & Rockwell, 1989), thus all the didactic resources that are related in any way with the school's everyday history must be considered important interaction media between the social practices and pedagogical practices. In this direction, textbooks used in schools that are in different social contexts, such as the countryside, an indigenous reservation or an urban environment, can constitute a resource that interacts in different ways with teachers and students, with the curriculum, and with the school's reality itself, generating conflicts and tensions.

The Brazilian National Program of Textbooks – PNLD was created in 1985 and originated from other Brazilian programs related to textbooks. It constitutes a policy that evaluates, acquires and distributes books for all public schools of the country and contemplates, nowadays, all the school's subjects of Primary School and High School. Following a trajectory that has increased the numbers of attended students and the level of education, after covering all the Primary School's students, in 2003 the PNLD started to distribute books also for High School students, and began to distribute specific books for the Countryside Education in 2013.

The necessity of specific books has been recurrently pointed out on documents produced by social movements that compose the joint for a Country-

side Education, moreover, it is present on documents produced by the governments, such as guidelines and decrees:

Art. 15. II – the specificities of the countryside, observed when meeting the requirements of didactic materials, equipment, laboratories, and travel conditions of students and teachers only when the school attendance is not possible directly on the rural communities.

(Brazil, Diretrizes Operacionais para Educação do Campo, 2001)

Art. 4º. VIII – production of didactic resources, pedagogical, technological, cultural and literacy that attend to the formative specificities of the countryside population

(Brazil, Decreto 7.352/2010)

In this context, with several contrasts and particularities, in which the school is inserted, it is evident the importance of analyzing how the resources used for teaching and learning are experienced by their teachers and students (Ezpeleta & Rockwell, 1989), what justifies the research on the books distributed through the PNLD Campo.

2   Research Methodology

According to the theoretical assumptions that relations compose the school's world (Rockwell, 1995, 1997; Ezpeleta & Rockwell, 1989), this research was aimed at describing, among other aspects, the social practices of teachers when they are interacting with textbooks. The research was carried out with the goals of identifying and comprehending elements of the choosing process and usage of textbooks, distributed by the Brazilian National Program of Textbooks for Countryside schools by its teachers.

Teachers from initial years of Primary School linked to municipal countryside schools of the county of Prudentópolis, in the state of Paraná, Brazil participated in this research. This county contains 64 municipal schools, from which 45 were contemplated by the PNLD Campo 2016.

Questionnaires were delivered to 51 teachers, out of which 31 were completed and authorized for analysis. The questions were about aspects of the teacher's academic training, teaching practice, school's community profile, Countryside School's experiences, the usage and choice of textbook, and considerations regarding this resource in the teaching-learning process.

3   Results

According to the data obtained through the questionnaire carried out with the teachers, it was possible to elaborate the following categories: academic and professional background; discussion about Countryside Schools; Countryside school experiences; school's community profile; the selection criteria of textbooks; the use of textbooks by teachers; teacher's opinions about the textbooks for Countryside Schools.

Academic and professional background

First of all, the research participants were characterized according to their training and time of teaching. The data indicate that teacher initial training is, mostly, in Pedagogy (84%), followed by Normal Superior Course[1] (13%), and Language Teaching (3%). A good number of the participants have up to 10 years of experience working as teachers (48%); 10 to 20 years of experience corresponds to 29% of teachers and 23% have more than 20 years on teacher's career.

Discussion about Countryside Schools

Regarding the opportunity of discussing the Countryside School theme over their trajectory, both initial and continuing training, the data show that most teachers (65%) have discussed this in full. More relevant is the high number of teachers that stated that they had had this discussion with other teachers (10), followed by subjects on the initial training course (7), meetings in the school and in the education office (6), continuing training courses (4), and in other situations (5).

It is important to emphasize that teachers that have had the opportunity of discussing Countryside Education on upper level courses have less than 10 years of experience teaching in schools. This indicates that the discussions coming from social movements and public policies that contemplate cultural diversities result in new cares and academic researches for Countryside Education. However, as shown in the research, this subject is not yet fully

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[1] Superior degree course that aims to train teachers able to teach in early childhood education and in the first years of Elementary School.

contemplated on courses of continuing training for teachers, which would allow consolidation of the already existing actions and the promotion of new teaching-learning perspectives for people from the countryside, allowing greater debates with the whole school community.

Countryside schools experiences

When asked about the contact that they had with Countryside Schools before initiating their teacher's activities, 62% declared that had experiences with Countryside Schools of their own community, expressed by statements such as: "my family is from the countryside, I studied in this school and nowadays I am still living and working in this place" (Teacher 11)[2]. This demonstrates the interest in contributing and following the changes in the community; another example: "I studied here, but the school was very small and it had only one teacher for all classes, now our community has grown" (Teacher 3). There is also the perspective regarding teacher's sons: "My sons study here, and I have always had contact with the countryside, because my parents were farmers and I still live here" (Teacher 8). Another experience approached by teachers refers to the initial training: "during undergraduate school, in the Methodology course, I had contact with the countryside school and nowadays I work in a multi-grades school, because it is very gratifying for me" (Teacher 21).

These particularities on the teacher's trajectories reinforce the local culture valorization and the continuity of permanence in the community. Moreover, these are important for the comprehension of the actions performed in class, because, according to ROCKWELL and EZPELETA (1989) the "knowledge that a teacher develops while working with a group of children necessarily incorporates elements of other domains of his or her life" (p.25).

School's community profile

Questioned about the profile of the school community, teachers were able to describe the local reality and present the characteristics of the students that were attending the school:

> *The profile of the community (..) mostly work as farmers. The students live around the school and some of them use the school transportation to get to school. The students here attend up to the fifth grade and then go to some place else that provides high school.* (Teacher 4)

> *The school attends students of four communities, among them a settlement[3]. Most of the parents work in agriculture e high-value the school, because the parents are participative in the activities promoted by the school, also they help in many actions that are necessary for the maintenance of the school.* (Teacher 11)

> *The school attends children [in communities] where the population is medium-low level, the family economy revolves around agriculture and some parents work in the urban area, the community has religious and cultural values with strong influence, especially in the Ukrainian and Polish cultures.* (Teacher 27)

The selection criteria of textbooks

Regarding the choice of textbooks for countryside schools, it was unanimous that the teachers chose together with the Municipal Secretary of Education: "The pedagogical coordinators responsible for countryside schools reached the teachers and the textbook choice was made to contemplate the same material for all schools of the county" (Teacher 25). The teachers also stated that they did not use the textbook guide[4] to support their choice or to clarify points about the available textbooks. It is still evident that there were only two collections available for the teachers to choose, not allowing no further possibilities of discussions and analysis.

The use of textbooks by teachers

Requested to describe how they use the countryside textbooks in the classrooms, 84% of teachers emphasized that the use is directly related to the acting curricular contents for the school's grades/years, as shown on the systemized answers on the following board (**Tab. 1**)

In the moments that the contents fit with my planning and with the specific contents of the class **(Teacher 4)**
Being an important support instrument for teacher's work, I use the textbook in class choosing the didactic activities that helps in the contents, in the researches, and in the expansion of teaching and learning. The most used are Portuguese and Math, in which the used technologies go beyond the textbook" **(Teacher 23)**
The most used books in the classroom are Sciences, History and Geography, when they approach the required contents in the countryside school planning **(Teacher 19)**
Complementary reading and activities that are focused or connected to the bimestrial contents and that are aligned to the Pedagogical Political Project — PPP of the school. **(Teacher 2)**
I use the countryside textbook, together with other books, every time I see the need to improve the content. **(Teacher 14)**

[5] To remain anonymous, the participant teachers were identified by Teacher, followed by a number.

I work with multi-grades classes and there are moments that the books are necessary to attend the students that need help, and to complement their activities. **(Teacher 11)**

Daily in all subjects, but to provide continuity to a specific matter it is necessary to resort to other books or to enlarge the activities to have an improvement on the quality of teaching and learning. **(Teacher 27)**

I use mostly for reading on the subjects of History and Geography. **(Teacher 30)**

Tab. 1 *Ways of using the books by the teachers on countryside schools.* (Souza and Garcia, 2017)

The actions performed by teachers with the textbooks demonstrate that adaptations and integration happen, because there are gaps regarding the used book, which results in teachers planning further practices that promote the learning according to particularities of their students. Among these, the practices that can be highlighted are those that: 1. use appropriate language, 2. approach contents targeted to the class, 3. raise instigating and contextualized activities, 4. allows to conduct a broader learning and enables the student to perform inferences, to inherit the acquired experience, to create and re-create, and to integrate themselves to the conditions of their contexts, approaching what was proposed and suggested by Freire (2011).

Teacher's opinions about the textbooks for Countryside Schools

Further relevant comments related to the teacher's opinions regarding the chosen textbooks are systematized on the Board 2. In these comments, it has been observed that there is a dissatisfaction of most teachers regarding the organization of the books regarding contents and language, due to not fully attendance the aspects related to the particularities of their students.

It disagrees with the programmed contents for the class, according to the pedagogical proposal of the county. **(Teacher 10)**

They are very bad, the matters are too repetitive, they do not attract students' attention. The matters are too condensed, the texts are hard for children to understand. **(Teacher 28)**

Too complex and low performance once the students cannot understand the content that has presented. **(Teacher 17)**

I would find it interesting if other than the countryside specificities it covered the contents of the curricular grade that permeates the evaluations offered by the MEC, as well as the ones that are a part of the county in which the school is located. **(Teacher 19)**

The collection we have this year come with little content, thus it does not attend the learning need of the students. We need to research in books from other years. **(Teacher 9)**

Unfortunately, this year's books are not so good, because only two publishers presented the books for the school. The contents are too abstract. **(Teacher 3)**

It is important that the students know other coexisting realities and cultures of other countryside communities of Brazil, but I use other books to complement the contents. (Teacher 25)

Many times out of reality. Each community has its own reality. The theory does not always correspond to the reality of the community in which the students are inserted. **(Teacher 26)**

I analyze as contingent to the student's reality, however I highlight to contextualize with the student's world knowledge and its changes, not only grounded on the textbook, because the students are citizens of the world, of a society that will demand knowledge. **(Teacher 14)**

Tab. 2 *Systematization of teacher's opinions regarding the used textbook.* (Souza & Garcia, 2017)

This consensus over the existing gaps on the textbooks from PNLD Campo 2016 points out that the relations between the subject of the school community and the educational policies are not yet properly articulated, which would make possible the elaboration of materials, which will in fact contribute to the school's activities. In this case due the expressive investment to the production of these materials, an establishment of a dialogue involving the agents of the Countryside School is needed; in particular to take into account the demands of each specific group regarding the access to the universal knowledge.

4   Final Considerations

Recognizing and valuing the cultural diversity of the Brazilian schools communities, the educational policies associated to the PNLD have developed actions and have stimulated the production of didactic materials that in some way attend to the local particularities. This research showed, however, that a meaningful attending of the school community yearnings is not happening, exemplified specially by the scarce applicability of the materials given to the students of the communities involved. Although teachers have the possibility of choosing the textbook they will use in class, there was a realization that the two approved collections for this choice did not attend in a satisfactory way the teacher's expectations, even when the received books were articulated with other materials.

Given the public investment designated for evaluation, selection, production, and distribution of these textbooks, it becomes important to develop researches and actions that can hear in a more

systematic and efficiently way to the needs of the communities, in order to subsidize the production of materials that meet and articulate the curricular contents with the specific needs of countryside education. These actions can contribute to minimize the common sensation of detachment between the public authorities and the daily concerns and tensions of the school's world, commonly expressed by teachers.

However, this requires an appropriation of the particularities of the local realities on educational discussions, an aspect that can be facilitated by a more effective participation of teachers and of the school community involved, the main mediators between the historically built knowledge, present in the books, and the life-knowledge accrued by the students themselves.

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Production
of educational resources
(including special needs)

Didactic material produced by NGDOs as an alternative resource to promote individualised learning

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Abstract

This article aims to raise awareness among teachers that both the education system and the teaching methodologies they employ must be adapted to reflect societal developments. In line with this argument, we will examine the possibility of using different paper and digital educational media, such as didactic material produced by Non-Governmental Development Organisations (NGDOs), which may be used as an optional resource in everyday lessons as an alternative or supplement to traditional textbooks in subjects such as: citizenship, rights and governance; gender; economic and social sustainability; peace studies, and interculturality. Resources of this kind can help teachers to promote targeted, personalised learning among their students.

The aforementioned subjects will form the basis for our analysis. Our aim is to ascertain whether the progressive materials produced by organisations committed to policies of cultural recognition and social equality promote a critical-dialogical approach and address issues of development education, or whether they continue to replicate the same hegemonic models which appear in textbooks.

Keywords: development education; new pedagogies; teaching and learning strategies; primary and secondary education.

1   Introduction

In the following lines, I will summarise my contribution to the round table *Educational media in different contexts*, in which I have been invited to address the following questions: can different paper and digital resources respond better in different contexts? Can these different media promote individualised learning? My responses to these questions are drawn from the theoretical background of my doctoral thesis 'The Development Education syllabus in materials produced by NGDOs', with the addition of practical input from my experience as a teacher from the start of my PhD project to the present day.

The objective of this article is to suggest several manifestations of capitalism and globalisation, particularly those related to advances in ICT, and the ways in which they have influenced our society and the educational media we use. Teachers cannot continue to employ the same media used for decades in a context of mobile learning, project-based learning, positive discipline, flipped classroom, challenge-based learning, and other new developments.

Similarly, in this era of global citizenship, the role of the teacher must also change to reflect a new teaching/learning paradigm more closely related to the critical-dialogical approach. As PRENSKY (2016)

states, we need critical brains to change the world, not more passive students. We must avoid focusing solely on academic success and teach our students to be critical citizens who will attempt to make their world a better place.

For this reason, we must seek alternatives to textbooks which more closely reflect our students' needs and preferences, and encourage them to develop their skills to become intellectuals who fight for a better world. The aim is to substitute students' personal achievement with collective achievement, and NGDO materials can help us to do this at specific points in the lesson plan, as we will demonstrate below using practical examples. This is why it is so important that Development Education concepts are introduced at school, starting at the pre-primary or primary level. Transforming the teacher's role into that of mediator of the teaching and learning process will require greater empathy with students, use of technological resources, revision of the syllabus where necessary, more attention to isolated subjects, consideration of new spaces, new organisation times, etc.

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2   Theoretical framework

This research is situated in the context of Development Education, and it would thus be helpful to summarise the parallels with the ICT world in which people live in a society where the differences between south and north are increasing on a daily basis. People from less developed countries must engage in clandestine emigration, often to their former metropolises, in order to find decent work, better educational opportunities for their families, housing, etc. This migration occurs mainly to the labour markets of developed countries (Castells, 1998).

It is therefore important to note the policies of resistance born of social movements and non-governmental organisations which promote other types of initiatives and models of social participation, supporting changes to the actions of governments to promote south-north equality and equity in the wake of the World Social Forums and the World Education Forums.

In the absence of real solutions from the governments of the most powerful, influential countries in terms of social, economic and human development policies, increasing numbers of stakeholders are involved in these social, political and economic processes at the national level. Meanwhile, government leaders follow the trend to delegate certain obligations, thus violating the fundamental rights of citizens such as the right to education or health, with the result that these basic pillars are covered by NGDOs in Development Cooperation programmes. It is possible that these organisations will eventually take over official aid entirely and provide a response to these issues in less developed countries, although such matters are usually overlooked in social science or history books as we will demonstrate below.

For the reasons outlined above, we believe that an organised citizen response to social inequality must come from the people, who can employ the instruments of political change and emancipation available to them, such as collective discourse, as proposed by various social movements, pedagogical renewal movements, NGDOs, etc. in the public space, empowering them to promote policies of resistance. As teachers in schools, we must stop considering ways to prepare students to obtain good marks and be academically successful, and begin to consider how to teach them to become critical citizens who seek to build a better world. It is time to expand our view of the materials available to us and diversify our selection instead of focusing on a single standardised resource for a very specific type of student.

Our intention, on the one hand, is to highlight the importance of reconsidering didactic materials, justifying our argument by selecting educational materials, more specifically those produced by Valencian NGDOs in Spain, as an object of analysis, as we consider these materials to be a strategic field of analysis for the concretisation and development of syllabi, in line with the contributions of authors such as Apple (1995), Sacristán (1991), Martínez Bonafé (1995; 2002) and Martínez Bonafé & Rodríguez Rodríguez (2010), as well as a didactic alternative to the hegemonic textbooks, which merit attention when selecting the materials used in lesson planning.

On the other hand, our aim is also to present alternative or complementary suggestions from the materials published by NGDOs and to test whether these different media can promote individualised learning, helping teachers to promote new teaching/learning methodologies such as project-based learning which are more closely linked to the critical-dialogical approach, including topics related to Development Education, thus justifying the research questions raised in this study.

3   Methodology

The aim of the investigation was to problematize certain issues, but this article will focus primarily on the second research question. For more information, please contact Esplugues (2015):

a) How can educational proposals relating to the different stages of the Development Education discourse, from the charity and humanitarian focus taken in the 1950s to the critical-solidarity focus in the 1970s, and the 5th Generation of Development Education in the 1990s, more commonly known as the global citizenship focus, be implemented?

b) How did each of the themes which define and lend specificity to the Development Education field materialise (citizenship, rights and governance; gender; economic and social sustainability; peace studies, interculturality and environment)?

c) What pedagogic and didactic approach is implicit in the published material, considering the role of the students or teachers in the material and the strategies used?

The *study sample* consists of 19 publications which address the subject of Development Education (published between 2000 and 2011) in the third cycle of primary education and the first cycle of secondary education. These publications were produced by NGDOs belonging to the Valencian NGDO Coordinator in Spain.

The *methodology* used in the investigation was qualitative, as the process was not linear and many elements required adaptation. For this reason, we adopted a critical pedagogy in line with authors such as Giroux (1996), Freire (2006), Carr (2013), Kemmis (1999-2000), Apple (1995) and Mclaren (2008).

A software programme was not used, and instead we created our own file based on the models used by authors such as Sacristán (1991), Martínez Bonafé (1995), Parcerisa (1996) and Rodríguez Rod-

ríguez(2010) , who does not create his own file but uses that of the two previous authors.

The *steps* followed in the investigation were:
a) Pre-analysis, in which we explained the study sample.
b) Initial contact established with all NGDOs by means of a letter explaining our research and inviting them to participate.
c) Count of the information obtained. The idea was to summarise the information gathered in an inventory, which can be seen in **Fig 1**.
d) Critical review, in which we analysed the materials summarised in the following table.
e) Practical experience, including our own experience as primary school teachers putting some of these NGDO didactic materials into practice over the last seven years.

Nombre ONGD. Señas de identidad.	Título del material	¿Cómo se concretan cada una de las temáticas que definen y dan especificidad al campo de la Educación para el Desarrollo?					
		CIUDADANÍA, ENFOQUE DE DERECHOS Y GOBERNANZA.	GÉNERO.	SOSTENIBILIDAD ECONÓMICA Y SOCIAL.	CULTURA DE PAZ.	INTERCULTURALIDAD.	MEDIO AMBIENTE, TERRITORIO Y NATURALEZA.
1. Ayuda en acción ONGD independiente, apartidista y aconfesional.	Mi amiga Illari.	X	X	X	X	X	X
2. Cruz Roja. Orden s. Juan de Jerusalén	Proyecto 8 objetivos en juego.	X	X	X	X	X	X
3. Educación sin Fronteras ONGD independiente y laica.	Carpetas de Interculturalidad	X	X	X	X	X	X
4. Entreculturas Fe y alegría. Jesuitas.	Ciudad planeta.	X	X	X		X	
5. Fontilles. Humanismo cristiano.	Un plato de sopa para el Dr Tatú.	X	X	X		X	
6. Fundación Dasyc Inspiración cristiana.	Juega, aprende y reflexiona.	X	X	X		X	
7. Fundación IPADE ONGD dedicada a la Cooperación Internacional y la Educación para el Desarrollo.	Guía para el profesorado sobre los ODM	X	X	X	X	X	X

Organization	Material						
8. Fundación Mainel Institución privada e independiente.	Centros de formación en alternancia del Perú.	X	X	X			X
9. Habita áfrica. Apuesta por la justicia, el respeto, la solidaridad, la profesionalidad y la eficacia como principales valores.	África cuenta	X	X	X		X	X
10. Intered. Institución Teresiana.	Quiero ser astronauta.	X	X	X	X	X	X
11. Intermón- Oxfam Diversos pensamientos políticos, religiosos y culturales.	La carrera de tu vida.	X	X	X	X	X	X
12. UGT Federación de Enseñanza ISCOD Sindicato UGT.	Mi escuela y el mundo.	X	X	X	X	X	X
13. Jarit ONGD laica.	Siente el Magreb	X	X	X	X	X	X
14. Jóvenes y desarrollo. Salesianos	Aprendiendo a ser ciudadano.	X	X	X	X		X
15. Manos Unidas. Iglesia católica.	Material de educación en valores.	X	X	X	X	X	X
16.Fundación Pau i solidaritat. Sindicato PV.CC.OO	Otra infancia en este mundo.	X	X	X	X	X	X
17. Save the children ONGD independiente.	Juntos por los derechos.	X	X	X	X	X	X
18. SETEM . Escolapias	Consumorama.	X		X	X	X	X
19. Viviendas para los sin techo ONGD apolítica y acofensional. Su contraparte " Corporación hogar de Cristo".	Convivencia intercultural a la Safor	X	X	X	X	X	

Fig. 1 *Inventory of NGDO didactic materials.* (Author)

4 Results and discussion of data

The results of the research demonstrate that didactic material produced by NGDOs in paper and digital format can promote individualised learning if used well by teachers. This will now be shown in response to the second research question, with the different categories summarised here:

Materials relating to the *Citizenship, rights and governance* category can be used in our lessons to expand knowledge of the rights to medical assistance, to have a home and clothes to wear, and to obtain an education, since this is a highly relevant contemporary issue. Students should be encouraged to listen to, watch or read the news to gain awareness that in most countries these rights are not guaranteed. It is important to use images taken from NGDO materials to prompt debate among our students and encourage them to think about issues such as fair trade, responsible consumption, etc. In this way, they will learn how well-known clothing brands such as Nike have been criticised for issues relating to the violation of labour rights. An activity such as the proposal from 'Jóvenes y Desarrollo', which appears to be closely linked to students' everyday lives, may be usefully incorporated into lesson plans. Students could also be asked to write an essay on the failure to fulfil the promise made by national governments to invest 0.7% of GDP in less developed countries. As teachers and researchers, we question whether these subjects appear in your students' social science or history books. If not, we advise that you use these materials as an optional resource to help provide precise individualised learning for your pupils.

These types of resources are also helpful in the *Gender* category, emphasising the role of women which is often overlooked in traditional textbooks. Some NGDO materials promote the idea that women are more than just housewives, and present examples of popular African writers, photographers or singers in '*Africa cuenta*', produced by '*Habita África*'. Female empowerment through education is also covered in the materials, in which Mabel, a girl from the Dominican Republic, realises that she would like to be a teacher, and Saray, a gypsy girl, tells her grandfather that she wants to study medicine. The book '*ISCOD. Mi escuela y el mundo*' also tells the story of the first woman to attend university and the difficulties which she faced. Teachers can take advantage of these materials to introduce co-educational examples, with images from '*Intered*' in '*Quiero ser astronauta*' in which a man is depicted hanging out clothes and a boy is seen playing with a doll, activities more often associated with the female gender. Another aspect depicted in some materials is new family models: single parent families, gay and lesbian couples, and their lack of acceptance in some countries. These are very modern subjects which teachers should include in their lesson plans. A very easy activity is to bring different pictures to class to ensure that all pupils feel included; most often, traditional textbooks depict white families with a mum, dad and children, with no mention of a stepmother or of two dads, despite these situations being quite common nowadays in students' homes. Even Disney has been criticised by the by LGBTIQ (Lesbian, Gay, Bisexual, Transgender/Transsexual, Intersex and Queer/Questioning) collective because the eleven films it has produced over the last two years do not talk freely and openly about this collective. Disney has now announced that in 2018 they will produce an animated film with a homosexual character or a lesbian princess. If things are changing in the entertainment world, why should they not do the same in schools?

Economic and social sustainability is another of the issues highlighted by NGDOs indicating the advantages of immigration for the economy. Materials include help for teachers to combat racism and xenophobia among students, breaking down barriers between the south and the north, or explaining concepts such as micro-credit used by women in Africa to create their own sewing shops, again in the material produced by '*Habita África, Africa cuenta*'.

The *Peace studies* category gives teachers examples of tasks to improve non-violent problem-solving skills: working in small groups and cooperating together, we can encourage our students to respect their classmates regardless of their nationality or religion. Through role-play, students will act out the role of a person who lives in a different country with fewer resources, encouraging them to appreciate what they have. Finally, service-learning activities recommended for Development Education should be implemented in schools, whereby students do something helpful for others. For example, in English lessons, 6th grade students can act out a theatre play for pre-primary students related to gender and human rights and using NGDO materials.

Interculturality is another important category. How many teachers have students of different nationalities and cultures in their schools? I am sure that most of the teachers reading this article do. Do you think that teachers tend to be interested in their students' lives in their countries of origin, or this is not considered important because it does

not appear in textbooks? A very rewarding activity for students would be to take a map and locate the countries where their families live and discuss their festivities (Christmas would be a good pretext to introduce festivities around the world). NGDO materials can be helpful, as they include specific resources about Morocco, the Dominican Republic, Chile, Brazil, etc., the countries of origin of our students, who have different tales to tell the rest of the students in the classroom about their cultures, religion, languages, etc.

With regard to the *Environment* category, these materials provide information on the management of resources such as water and electricity, accompanied by practical examples. They also explain models of production, distribution and consumption, showing the differences between south and north.

The materials also include information on peasant agriculture and food sovereignty as opposed to extensive farming, explaining the pros and cons of both, and giving examples of different perspectives to encourage students to be critical and to look for information in other media, before comparing it and writing their own essays expressing their opinions on the subject with a project-based learning methodology. They can then share their views with their classmates via a PowerPoint presentation. The materials also highlight the importance of the 3Rs (Recycle, Reduce and Reuse), allowing students to learn to reuse and recycle and avoid wasting resources. This can be usefully indicated to our students in arts and crafts lessons, where they can create their own games and toys from recycled materials.

5   Conclusions

This research suggests that NGDO didactic material can be used as an alternative paper or digital resource, as it promotes individualised learning on the themes which define and lend specificity to the Development Education field. Nonetheless, the pedagogical approach adopted in textbooks must also be adapted to be more critical, as expected in our modern society. Accordingly, we should analyse each resource before using it, and only preserve those aspects which we consider to fit our lesson plans. NGDO materials should be viewed as just another resource, and they should not be followed chronologically as in a textbook since they also contain gaps in terms of the issues analysed.

Following this study, and taking into consideration the recommendations of the HEGOA conference

(2014) 'PROCEEDINGS. *Change education to change the world …! For an emancipatory educational action!'*, which suggested mapping educational experiences and good practices as examples of good teaching methodologies, we have sought to present our own teaching practice in the years since the beginning of the doctoral research process and after attending various international conferences on education and speaking at the last six international seminars on the design and evaluation of teaching materials held every year in Galicia by the MRP Nova Escola Galega.

In our view, research on textbooks and educational media must continue in order to provide teachers with the necessary resources to gradually implement the critical-dialogical paradigm in schools.

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Analysis and classification of didactic materials for the inclusion of people with hearing impairment

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Abstract

The aim of this study was, firstly, to identify didactic materials and resources developed for the hearing-impaired, together with other materials not originally conceived for this group but which may be useful for facilitating their inclusion in ordinary classrooms; and secondly, to classify and organize these materials according to a taxonomic scheme so that they may be accessible to teachers and the community at large for use in classrooms or society in general. After identification and interpretation, a repository was made accessible to the entire educational community, thus breaking down barriers to inclusion.
Our investigation involved an exhaustive review of bibliographic resources available on internet blogs, repositories and the web, as well as in physical libraries and specialized centres in printed formats.

The sample consisted of 400 analysed materials. We used a mixed qualitative and quantitative methodology, which allowed us to identify the intratextual and formal characteristics of the resources, as well as classify and compare them according to criteria such as typology, target, format, and other criteria based on similar scientific literature. In addition to identifying materials, a content analysis was carried out in order to classify them according to the criteria previously mentioned. These criteria also served to organize the materials and make them accessible to teachers and the community in general.

Keywords: Teaching materials, educational inclusion, hearing impairment, education of deaf people, taxonomy of teaching materials.

1   Introduction

The education of people with special educational needs (SEN), and specifically, people with hearing impairment, is marked by a changing road from ancient times from today, modifying and using different methodologies and didactic materials. In this sense, the current market gives the educational community specific materials with which to work, but also teacher's exchange, modify and create materials. Thereby, the new technologies are a very favourable elements in helping with the communication and development of people with disabilities, specifically hearing impairment.

Fundamentally, in the field of research, it has been worked on and studied about the educational perspectives and the curriculum adapted for deaf people, and not so much about the materials. But every day the diversity of teaching materials focused on

SEN, and specifically on hearing impairment, has been increasing, as well as the multiple methodologies to be used in schools. Also, innovation and improvements in the field of technologies, and their adaptation to educational and social processes are present every day, so it is convenient to think about Information and Communication Technologies (ICT) and Knowledge and Learning Technologies (NLT) as an educational resource that can be adapted to the different learning processes that may arise from the heterogeneity of the students.

2   Objectives

The **general aim** of this investigation is identify didactic materials and resources developed for the hearing – impaired children, together with other materials not originally conceived for this group but which may be useful for facilitating their inclusion in ordinary classrooms.

And the specific goals are cclassify and organize these materials according to a taxonomic scheme so that may be accessible to teachers and the community; as well as create a blog[1] to publish those materials.

3   Theoretical justification: teaching materials, hearing impairment and inclusion

Inclusion

Years ago the special education was centred, following Arnáiz (2003) and Núñez (2008), in a segregating system, whereas, since the World Conference on Special Needs (Salamanca, 1994), an inclusive education is defended where ordinary schools are for everyone, so to achieve it, it is necessary to carry out changes, always taking into account that inclusive education will be different in each school.

Authors such as Echeita and Sandoval (2002, cited by Peirats and Cortés, 2016) point out that the desired educational inclusion consists on "identifying and minimizing the elements or barriers that hinder the learning and participation of students, as well as trying to maximize the resources they support both processes" (p. 92), promoting equality and ensuring the dignity of all students as basic rights. It is, following Sandoval, Simón and Echeita (2012), a gradual transformation of the educational system and learning environments to respond to the diversity of all the students. In this sense, mention Escudero (1990) and Muntaner (2000), this changes are needed in terms of the organizational structure of the centre, the curriculum, the basic teaching-learning processes and education professionals to achieve full and inclusive diversity in the centres. The support in the classrooms must be addressed to the needs of the students and the teachers, reason why, it quotes Lozano (2007), the supports in the inclusive classrooms must be realized in the ordinary classroom, and not in a different classroom. These supports, says Notó (2000), can be viewed internally, centred on professionals who are part of the community of the school; or external, proposed by the Educational Administration and other organizations.

Hearing impairment

Deaf people are defined, according to WDF[2], as people who use sign language as a way of primary communication, who identify themselves with deaf people. The causes can be basically two: hereditary or acquired; and the classification of deafness can also be seen from two sides (López Urquízar and Royo, 2005): the place of the injury and the moment of its appearance.

FIAPAS (Spanish Confederation of Families of Deaf People) formulates as development milestones of education for deaf children:

> 16th Century: Pedro Ponce de León initiates the oralistic method in Spain.
> 18th Century: the abbé L'Epée publishes in Paris the mimic or sign method.
> 19th Century: it is proclaimed that the oral method must be preceded by mimic on the International Congress of Milan.
> 20th Century: the Washington Deaf World Congress is pronounced in favor of total communication with deaf people.

Therefore, the latest educational trends emphasize a predilection for inclusive and bilingual education, in oral and sign language (Humprhies et al., 2014). As such, the needs of the deaf children in the educational field are centred in the areas where they can demand more support from the school: cognitive, socio-emotional and communicative - linguistic area. Jáudenes (2013), from FIAPAS, and Adrian, Calafí, Gisbert, Hurtado and Pastor (2014), propose measures that can help them in the classroom: access information from different channels (using the sign language, computer and augmentative systems), modify the work methodology, stimulate the auditory route, establish a system of academic support, use technical aids that students may need, etc.

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[1] Materiales y recursos didácticos para la comunidad sorda. Enlace web: https://taxmaterialsordos.wordpress.com/

[2] Word Deaf Federation. Recuperado de https://wfdeaf.org/

Also, we must take into account the fundamental role of ICT and NLT, in order to provide a learning to the same extent for all students. Iglesias, Jiménez, Revuelta and Moreno (2014) point out how the use of ICT in the classroom can prevent communication barriers that students with hearing impairments suffer in the classroom and, as an example, Kourbetis, Boukouras and Gelastopoulou (2016) underline a project focused on hybrid textbooks.

Teaching materials

In order to talk about teaching materials, we must take into account that any material can be used for a didactic purpose, but Area Moreira (2004) defines

> *"Properly didactic material as a set of pedagogical devices or physical media that transmits the content or knowledge that students must acquire in specific situations of 'teaching "* (p. 80).

The relationship between attention to diversity and materials is complex and also relevant, since materials and diversity must be united to favour the teaching-learning process of all the students. Teaching staff should use resources and educational materials that help students to progress in their training. When it comes to students with some type of disability, the classroom and the methodology used must be adapted, being flexible but specific, adapting to the different characteristics that the students will present in the classroom, being the traditional textbooks the main enemies of this educational thought. (Castro and Castro, 2009).

Adaptations, preparation and selection of materials, following Camacho, Pérez and Domingo (2014) and Sánchez, Blanco and Castro (2015), are an essential part of the process, helping to participate and empower students, as well as the methodological strategies used in teaching, looking for all the children to develop their potentials to the highest (Vieiro, Gómez, Sánchez and García, 2015).

There are many classifications in terms of typology of teaching materials, in general or centred in the different disciplines, and each one focuses on different items to develop them. These items, according to Alonso, Cantón and Gallego (1996), tend to be based on the time of use of the material, complexity, form, senses to which they allude, level of realism, language codes used, etc. Regarding the NEAE or NEE, some of these already elaborated classifications, such as those of Moreira (2004) or Alonso (2012), are focus more on materials dedicated specifically to students with hearing impairments and NEE.

4   Methodology

The methodology chosen for this work is essentially qualitative because is a documentary analysis, but we also use quantitative actions in a complementary way, giving us the option of counting and classifying the materials. Nothing prevents the combination of both, according to Castiello (2002, quoted in Zapico, 2012), considering they are not incompatible and the use of both is even necessary (Parcerisa, 1995; cited in Zapico, 2012). The process followed was:

Stage 1:
Bibliographical review around the basic concepts

A thorough and rigorous verification of the different revisions in the literature has been carried out in order to clarify and systematise the different definitions and classifications related to didactic materials, inclusion and hearing impairments, paying special attention to those that could be designed to classify the elaborate didactic materials about the disability, or specifically in the field of deafness. In particular, contact and virtual searches were done in the following contexts, search engines and web pages:

> Libraries of Coruña and Santiago Universities.
> Google and Google Academic.
> Databases ISOC[3], Dialnet, Scopus and Web of Science.
> Specialized journals on ICT and special education highlighting *Revista de Tecnoloxía Educativa, Revista Galega de Educación or Relatec.*
> IARTEM[4] (International Association on Textbooks and Educational Media).
> CNLSE[5] (Centre for Language Normalization of Spanish Sign Language) virtual library.

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[3] Base de datos de Ciencias Sociais e Humanidades do CSIC (Consello Superior de Investigacións Científicas) Enlace web: http://bddoc.csic.es:8080/isoc.doc

[4] Enlace web: https://iartemblog.wordpress.com/

[5] Enlace web: http://www.cnlse.es/

Stage 2:
Review and classification of teaching materials and resources

The second stage is focused on direct work with materials included in the sample, which will be evaluated to give rise to the taxonomy being pursued. The materials will be analysed according to the classification cards designed specifically for the type of resources with which it is working. Have been consulted:

> CNLSE, establishing that the library of resources with which they count would be the central axis to obtain the materials to be analysed. It has resources about the deaf community, videos and audiovisual material that allows us to access them online or face-to-face.

> Online resource banks: the search has begun by the online repository of the CNLSE and linked to this repository are the different federations of deaf people and the associations of parents and friends of the deaf.

> Files of the governing bodies: we have accessed the web references of the Ministry of Education Culture and Sport, which has resources banks such as the Redined[6] or Educalab. On the other hand, in the autonomic aspect, access to the libraries and publications of the various Education Councils of the autonomous communities, as well as to their training centres for teachers and Specific Orientation Teams.

Stage 3:
Formulation and reflection about the taxonomy

The final part of this research focuses entirely on the scientifically rigorous proposal of the taxonomy obtained after analysing the sample of materials. Previously, by filling out the classification sheets, the basis was established to analyse them individually, and by groups of users. Approach the taxonomy by itself, it is done from the main point of view of the target users, so, from there, establish qualifying subgroups in the same way for all the users thereof, as will be explained in the following pages.

The classification sheets are structured in five sections that will allow us to collect basic data about the didactic materials intended for people with hearing impairment, providing us with a series of equalities or similarities that will determine taxonomy that is pursued in this study. We consider, therefore, that the cataloguing of materials according to are for parents, students, educational stage, how they present, etc.; is the most simple form of obtaining the common features that will shape the taxonomy.

Title of the material		
Identification data		
Author		
Place and date of publication		
Publisher		
Format		Manipulative
		Printed
		Audiovisual
		Digital
Web link		
Target user		
Students		
Teachers		
Families		
Community		
Educational stage		
Child education		
Primary school		
High school		
Group		
Stimulation of expression and communication		
Materials of the educational curriculum		
Learning of SSL or CSL		
Dictionaries		
Manuals and guides		
Tales and entertainment		
Materials about deaf culture		
Others		

Tab. 1 *Material evaluation guide.* (Authors)

5   Results

The main objective of this taxonomy is to facilitate the search for didactic materials that revolve around hearing impairment, so that any of the users who demand these resources know where to find them easily. The decision of choosing the target users (family, students, teachers and community) as the

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[6] Redined: Red de Información Educativa

main group to establish the taxonomy is due to the fact that, when looking for materials to work and use, the easiest thing to do is to directly go through the group of tools that are appropriate for the work field or study of each one. Otherwise the groups of belonging between which the different materials were classified, once the main recipient is established, they are defined in:

> Citizen accessibility
> Learning from SSL and CSL
> Tales and entertainment
> Dictionaries
> Stimulation of expression and communication
> Manuals and guides
> Materials of the educational curriculum
> Materials about deaf culture
> Others

Therefore, the classification of the materials is exposed as follows:

Resources related to use by families

In this case, users can find printed, manipulative, audiovisual or digital materials. The first of the subcategories, tales and entertainment, being also the most numerous. It includes, mostly, printed stories, such as the collection of *Carambuco Cuentos*. The manuals and guides for this group can be seen in print, audiovisual or digital, such as the *Mi hijo sordo* website.

People may be surprised that in the family environment, we see materials focused on the educational curriculum, but this is because materials *Signando en primaria: recursos para el cole y la casa* provide resources that can be used both outside and inside the classroom. Regarding expression and communication and knowledge of the deaf culture, it is materials that can provide families with information about a member with hearing impairments, and also help him in the field of communication between them, such as *Preguntas y respuestas sobre el implante coclear*. Finally, there are classified materials like "others" that try to prevent drug use in adolescents and promote safe use of the Internet.

Resources related to use by teachers

Regarding the resources for the teachers, the most interesting ones are those focused on the educational curriculum and the manuals and guides. The materials that are in digital format are included in different Specific Orientation Teams that adapt and publish resources for Primary Education. The printed and audiovisual pieces offer different resources to

the faculty that can be considered when having a student with hearing impairments in the classroom, such as the *Acceso del alumnado con sordera al curriculum de lenguas*.

In regard to the learning of the SSL and CSL, we see collections as *Vamos a signar* at different levels, having a printed book and an audiovisual material (DVD). The deaf culture is present in the document *Sensibilización en contextos educativos*, which allows the educational community to understand the deaf students who attend school. Finally, the dictionaries, published for different ages, appear as a complementary material with strong presence in the classroom.

Resources related to use by students

Leisure, being a fundamental part of the development of any child, is represented in printed, audiovisual and manipulative format, like *Animacuentos*. The tales are also mostly adapted to the SSL or the CSL, so that, apart from those produced especially for this group, there are also other adapted by professionals. Although most of the materials are designed for the Primary Education stage, it should be noted that, for adolescent pupils, manuals and guides have been produced, as well as materials about deaf culture. Both deal with issues that may be relevant to both deaf and listener youth but are adapted to the first ones, such as the digital material *Mi blog paso a paso en LSE*.

Respecting to the materials focused on the educational curriculum we find how the digital stand out, getting to produce mobile applications such as AUDAGE. The dictionaries are found, as in previous occasions, in a mostly printed format, although also digital, like the web Actividades en LSE.

Resources related to use by the community

In the first place, as regards the deaf culture, there are several printed materials dedicated to making this group more in depth known, such as *Protagonistasordo* (FAXPG). On the other hand, as in the previous occasions, the learning of SSL and CSL is open to the community, and, digital, audiovisual or printed materials can be found. We also find various manuals and guides, as well as other materials focused on citizen accessibility, which bring to this community adapted knowledge in various areas such as driving manuals, tourist guides, financial education, theatre, movies and accessible literature in SSL allowing the improvement of the inclusion of this community.

Target users	Families	Teachers	Students	Community
Materials and resources	*Printed* > Tales and entertainment > Deaf culture > Expression and communication > Manuals and guides > Others: drug prevention and internet security	*Printed* > Learning LSE/LSC > Deaf culture > Educational curriculum > Dictionaries > Expression and communication > Manuals and guides	*Printed* > Learning LSE/LSC > Tales and entertainment > Educational curriculum > Dictionaries > Expression and communication > Manuals and guides > Others: drug prevention and internet security	*Printed* > Citizen accessibility > Learning LSE/LSC > Tales and entertainment > Deaf culture > Dictionaries > Manuals and guides > Others: drug prevention and internet security
	Manipulative > Tales and entertainment		*Manipulative* > Tales and entertainment > Educational curriculum	
	Audiovisual > Tales and entertainment > Educational curriculum > Manuals and guides	*Audiovisual* > Learning LSE/LSC > Educational curriculum > Expression and communication	*Audiovisual* > Learning LSE/LSC > Tales and entertainment > Educational curriculum > Others	*Audiovisual* > Learning LSE/LSC > Tales and entertainment
	Digital > Manuals and guides > Others: drug prevention and internet security	*Digital and APP* > Learning LSE/LSC > Educational curriculum > Dictionaries > Manuals and guides	*Digital and APP* > Learning LSE/LSC > Deaf culture > Educational curriculum > Dictionaries > Others: drug prevention and internet security	*Digital and APP* > Learning LSE/LSC > Tales and entertainment > Dictionaries > Manuals and guides > Others: drug prevention and internet security

Tab. 2 *Taxonomy: types of materials.* (Authors)

6 Conclusions

By way of synthesis, we present some of the main conclusions that derive from the research carried out:

> We believe that through the work done, the needs and lack of resources on this subject have been clearly demonstrated.

> This is one of the first works that has made possible to centralize a large part of the existing resource banks on the subject, which can be of great help to teachers, families and other professionals.

> The proposed proposal has helped to complete other existing classifications of materials that in most cases did not reflect the characteristics and particularities of materials for deaf children.

> The existence of this taxonomy opens future possibilities for the study and investigation of the existing didactic materials to work on the subject of deafness.

> This work has allowed us to detect gaps in existing materials and resources on the subject and facilitates that the proposal can become an important reference for publishers and producers of didactic materials.

> The importance and continuous improvement of ICTs and TACs for their daily use in the classroom, helping the inclusion of the deaf children.

> The taxonomy provides a functional and double classification model, which allows to choose the materials according to the recipient or the educational stage.

> The work has highlighted the need to favor and promote strategies that help in the processes of adaptation of the "conventional" materials to the particular ones of the deaf children.

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The state of published research on teaching materials in Early Childhood Education: a first approximation

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Abstract

Here we present a classification of different lines of research regarding teaching materials in Early Childhood Education. We identified five relevant lines and decided to add a final group including other topics: a) studies about classroom materials and teacher training and opinions about them, b) studies about digital materials in Early Childhood Education, c) studies about robotics as teaching material in Early Childhood Education, d) studies about toys as teaching material in Early Childhood Education, e) studies about didactic materials in relation to dhe Early Childhood education curriculum, and f) other studies about teaching materials in Early Childhood Education.

The methodology used for this classification was a bibliographic review based on search, selection, analysis, reading, synthesis, and reconstruction of the information. For the search, we identified useful descriptors to find studies to suit our needs.

Keywords: Teaching materials, review, Early Childhood Education

1 Introduction

Didactic materials are one of the most important elements in the teaching-learning process in Early Childhood Education.

Zabalza (2016) affirmed that teaching materials are a valid indication of the kind of activities that children do and the way that schools respond to students' needs; this author adds that materials constitute an essential element for the transmission of values and contents in the Early Childhood stage.

Similarly, Urbina (2004) defended that teaching materials configure and determine a methodological variable with real importance in the learning-teaching process in schools, therefore, how they are used, will determine their value.

Nowadays there is a vast amount of teaching materials that we, as teachers, can use in our classrooms, from the most traditional to more innovative, printed materials to digital materials, and from recycled materials to commercial ones. We part from the idea pointed out by Parcerisa (1999), who affirmed that the complexity of educational work can do without additional terminological difficulties.

We should start by defining the term teaching materials. Among the definitions, in 2002 Rodríguez and Montero described didactic material as resources designed and elaborated intentionally with the main purpose of facilitating the process of constructing knowledge for both students and teachers. Likewise, Zabalza (2008) emphasized that teaching materials are a valid indicator of the kind of activities that children perform and the way schools respond to students' needs.

In this first approximation, taking into account the definitions by authors such as Urbina (2004), Zabalza (2008) or Zabala (1995), we understand didactic materials to be aids to the pedagogical intervention that teachers do every day in their classrooms, which become more enriching to learning as we learn more about them and how to use them.

This paper presents only the major blocks of research found and the type of studies that we classified. It is based on a review of several studies carried out in Galicia, nationally and internationally for the purpose of putting them all together to become a useful aid, orientation and foundation for future research.

In addition, we present examples of studies that we found particularly significant because of their approach and findings.

The research could be classified into five major groups that were classified by taking into account their focus and the interest of their conclusions:

a) Studies about didactic materials and teacher training and opinions about them in Early Childhood Education
b) Studies about digital didactic materials in Early Childhood Education
c) Studies about robotics as teaching material in this stage
d) Studies about toys as didactic material in Early Childhood Education
e) Studies about didactic materials in relation to the Early Childhood education curriculum

Furthermore, we added a section for other studies on didactic materials at this stage that were not related to each other or other established lines.

Aims

> To provide a classification of research lines on the topic.
> To determine the influence of new technologies in the introduction of new didactic materials in Early Childhood Education classrooms.
> To develop a background documentary database on teaching materials at this stage for future research

2 Method

The methodology used to achieve these aims was a bibliographic review, based on the search, selection, analysis, reading, synthesis and reconstruction of the information.

For the search we chose several useful descriptors to find research that would suit our needs, such as "teaching materials", "lines of investigation", "Early Childhood Education" and a variety of combinations of these terms in three languages: Galician, Spanish and English.

First of all, we used general search engines like Google, and then specialised databases such as Dialnet, ERIC, ISOC, and Google Scholar. In addition, we searched for theses related to the topic using databases such as "Teseo".

Finally, we made a revision of Congress proceedings related to Early Childhood Education, which we found on the IARTEM website and in various Education journals.

Selection was then made for critical reading and subsequent classification and organization. We started by reading study abstracts to determine if their aims were in line with our needs. We also took study structure into account.

Furthermore, we prepared cards indicating abstract, method and conclusions to help us summarize each study.

After processing the information, studies were classified into groups as will be shown in the results section.

3 Results

We found a total of 48 studies related to teaching materials in Early Childhood Education. These were mostly carried out between 1990 and 2016, though we also found a study from 1980. Here we only quote some of them as examples for each group:

Studies about didactic materials and teacher training and opinions about them in Early Childhood Education

This group included six studies. We can highlight the relation between the teachers' selection of didactic materials and teacher training in the field.

This group contained empirical descriptive studies applying a variety of techniques such as interviews, observation or information collection using a questionnaire to a previously selected sample.

The following are some particularly significant examples:

The first example is a general study entitled *"Los recursos materiales en Educación Infantil"* carried out by Sainz in 1993. Sainz explains and offers a classification of teaching materials needed to design the learning-teaching process, and states that teacher training in this stage should include work with teaching materials.

The results of this study are diverse, but what stands out is the adequacy of using images and musical instruments in Early Childhood Education to promote the integral developing of children. The author's classification also includes edited curricular material (text books), which have been extensively studies by a variety of authors throughout history.

In the international area, we can point out the work done by Byington and Tannock in 2011, *"Professional development needs and interests of Early Childhood Education trainers"*. The purpose of this research was to determine the most important components for adapting the teaching-learning process to the needs and characteristics of children.

These authors concluded that most teachers used teaching materials that they had made themselves. They also added that permanent teacher training in this education stage is essential for the development of active methodologies and for the design of teaching materials adapted for each situation, as also affirmed by authors such as CAMPBELL and MILBOURNE (2005).

It should be underlined that most of the research expressed the importance of initial and ongoing teacher training on teaching materials and the need for collaboration, co-operation and teamwork among school teaching staff for the analysis, selection and use of teaching materials

Studies about digital didactic materials in Early Childhood Education

The second group of studies involved digital didactic materials, seeing as the introduction of new technologies in Early Childhood Education classrooms has been the focus of several authors. We found twelve studies in this field.

The introduction of new technologies in the field of educational spurred several studies on didactic materials in a variety of aspects such as the design of resources banks, how these materials are used as well as research on augmented reality and QR codes.

One notable example is the study by BRICEÑO in 2005: *"Aplicación de un material educativo multimedia en las aulas de educación infantil"*. Its aim was to apply a multimedia material based on learning strategies to facilitate the process of reading and writing in Early Childhood Education.

The findings revealed a need to take into account children's interests and motivations for working with multimedia materials and didactic materials in general, and established this factor as a determinant criteria for designing and choosing materials for Early Childhood classrooms.

Special mention should be made of the case study *"La realidad aumentada y los códigos QR en Educación Infantil: un estudio de caso"* that Mirete presented at the IV International Congress of Investigation and Innovation in Early Childhood Education and Primary School. In this study, MIRETE (2016)

presented a descriptive case of action research involving a 7-session intervention plan in in a 5th year Early childhood Education classroom; the author concluded that the introduction of digital materials was satisfactory for children and, with respect to teachers, the author states that it is necessary to put aside traditional methodologies and choose methods where the children are protagonists, as in the project-based work defended by DíEZ (1998).

Thus, the importance of new technologies in our society and their role in the classroom is acknowledged, as is the need for teacher training in this area.

Studies about robotic as teaching material in this stage

The next group of studies focused on robotics as didactic material, seeing as a number of studies on this topic have been carried out in recent years.

We found six studies carried out in the last ten years and most of them in the international context.

We would like to point out a study by researchers at the University of Massachussets in 2014 entitled *"Implementing a Robotics curriculum in an Early Childhood Montessori Classroom"*. For this study, they designed several activities to work with robots and children in Early Childhood Education; these authors concluded that the use of robots stimulated learning and were positive regarding their introduction to this methodology, characterized by the use of new manipulative elements (LILLARD, 2010).

In a similar line, another particularly relevant study was carried out in 2007 by TANAKA, CICOUREL and MOVELLAN and entitled *"Socialization between toddlers and robots at an Early Childhood Education center"*, dealing with the interaction between robots and children and analyzing the behaviors of children working with robot programming and their participation in the process.

This study highlighted the fact that motivation plays an essential role in the introduction of teaching materials into Early Childhood classrooms and that it is important for children to build their own learning.This recent line of research seems to be a promising field for continued work given the potential of these materials.

Studies about toys as didactic material in Early Childhood Education

The fourth group of studies focused on a topic that is closely related to the interests of children: toys as didactic material in Early Childhood. This group consisted of six studies.

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A significant example is the study by Castro carried out in 2008 and entitled *"Juegos, simulaciones y simulación-juego y los entornos multimediales en educación, ¿mito o potencialidad?",* which concluded that simulations are not a substitute for real practice, but they seem efficient in preparing for it. It is also affirmed that their educational purpose is the development of complex abilities and decision making. Moreover, it is considered essential that the use of the toys in Early Childhood education classrooms play a protagonist role in the learning-teaching process, as defended by Froebel (2005).

The research in this group agrees on the importance of analyzing teaching practice and the role of teachers in the use of toys based on observation, and analyzing the behavior of children with the "toy".

Studies about didactic materials in relation to the Early Childhood education curriculum

With respect to didactic materials and the Early Childhood Education curriculum, we found nine studies related to the three areas established in decree 330/2009, which regulates the curriculum of this education stage in Galicia (Spain).

The research in this group is divided into the three areas of experience. These studies advocate the selection of teaching materials according to the objectives and contents to be worked with.

It is important to highlight cross-sectional elements for addressing different competences such as learning to learn. In this sense, we found the research by Páramo, Carregal, Raposo and Martínez especially significant. In 2015 they carried out a study entitled *"Material didáctico para el desarrollo de capacidades metacognitivas en Educación Infantil: ¡En busca del tesoro perdido!"* for the purpose addressing the need for finding material adapted to the capacities and characteristics of children and dealing with the metacognitive abilities of children at this age.

The authors consider that it is possible to develop the competence of learning to learn, as defined by Moral (2008), who described it as the abilities of thinking, autonomic learning and self-regulation.

Other studies about didactic materials

Finally, the last group included nine studies about the function of didactic materials, analysis instruments and their evaluation, the relation between materials as well as coeducation and inclusion.

In the learning-teaching process there is a place for different elements involving teaching materials, and in 2013 Moreno carried out a study in this line entitled *"La manipulación de los materiales como recurso didáctico en educación infantil"*. The author concluded that in this stage of education learning is mainly achieved through the senses, and that the manipulation of teaching materials has real importance in teacher training (Martínez, 1993).

An important theme in this field is co-education, and teaching materials play an important role in fostering and respecting this principal as a cross-sectional theme in Early Childhood Education. This position was defended in 2015 by Diz and Fernandez in their study entitled *"Criterios para el análisis y elaboración de materiales didácticos coeducativos para la educación infantil"*. These authors concluded that in order for teaching materials to be coeducational they must, among other things, grant both boys and girls the possibility of representing themselves in a positive way and the content must be free of sexist connotations.

4 Conclusions

Our review has led to a number of conclusions that we summarize as follows:

1. After classification and thorough analysis, we can affirm that teacher training regarding the characteristics and use of didactic materials is one of the elements that most concerns educational research and that is closely related to quality in Early Childhood classrooms.
2. There is increasing research on robotics and digital didactic materials.
3. This analysis has helped us better understand different dimensions of the teaching-learning process involving didactic materials, and realize the influence of new technologies such as robots and video games in Early Childhood Education classrooms.

In light of this review, we consider that future research should be done in the following areas:

> The teacher training in Early Childhood Education in Galician Universities regarding didactic materials
> The elaboration and design of teaching materials by teacher themselves.
> The elaboration of analysis instruments and the evaluation of the characteristics and functions of didactic materials in Early Childhood Education.

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Use of digital didactic materials in the DL from students' point of view

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Abstract

In this digital age, it is necessary to understand how the study habits of university students in distance education influence the process of digital didactic production. In this paper, the main objective is to identify students' point of view regarding the use of digital educational materials. A questionnaire was applied for data collection, with open and closed questions, asking students in distance and semi-distance university courses – in an institution that develops materials specifically for the digital environment – about how they use digital materials. In order to substantiate this study, we chose the conception of cyberculture of Levy (2010), the concept of interaction and cooperation of Belloni (2010) and Primo (2013), and the conception of Freire (1996), especially with regard to reflecting on the teaching and learning process. The partial results indicate the importance given by the students to the development of cooperative materials, with particular attention to the co-authorship and to the debate on the realized contents.

Keywords: digital didactic materials, distance education, hypertext

1   Introduction

In Brazil, distance education has taken a different path from face-to-face institutions and basic education schools in quickly adopting digital technologies. The exponential growth of this modality of education is very much due to digital technologies, the Internet and to Web 2.0, which has enabled interaction between students in fully digital Virtual Learning Environments.

One point that deserves to be widely discussed in distance education is the question of didactic materials. In this modality, didactic materials expand their function, practically merging with the concept of "class" as the main source of mediation: since there is not necessarily a teacher present at all times, the conduct of much of the educational process is controlled by didactic material, which was elaborated by the teacher.

In Brazil, Distance Education Course make extensive use of audiovisual material in connection with printed materials. In view of this, we wanted to locate the points of permanence of the traditional didactic model, identifying what digital materials are being used and how students and the school culture influence the choice of materials, and identify on what basis they are chosen. In the search for a model of active education, we identified hypertext as a possible ally for the development of teaching material that contributes to active and cooperative learning. Area (2017) contributes to this reflection by criticizing the textbook model that delivers only ready-made and predefined content to the student, suggesting that digital didactic materials are an opportunity to review the educational process in a reflective and critical way.

The present research is therefore an exploratory study developed as part of a doctoral research that is still in progress, at the Federal University of Paraná, which aims to survey students' study habits in the modality in question and analyze the possibilities and desires for interaction, specifically co-authoring, from the point of view of the students. The guiding question of this exploratory study is summarized as follows: How does the school culture of university students in the distance modality influence the process of this type of didactic production and allow the creation of other formats of didactic materials?

The purpose of this research is to understand how the reading practices of university students in distance education course influence and are influenced by the production process of this kind of didactic materials, making possible or preventing the creation of other models of didactic materials, produced in a cooperative way.

2   Theoretical foundation

Many surveys, categorized by Perez & Aretio (2014) as mid-level, deal with aspects of management, organization and technology in distance education, while micro-level research has been scarce; in this, the authors include research on teaching and learning in distance education, covering research on educational design, interaction and communication in learning communities and the characteristics of students. It is precisely into this research gap that our research has inserted. We focused in particular on the relation between the production of didactic materials – that is, the approach to the educational design – and the characteristics of students, which can contribute to changes in digital materials for distance learning.

We suggest that through cooperative work, promoted by the hypertext as didactic material, it is possible to make the student the protagonist in the educational process, following what Freire (1996) advocates for an emancipatory education. For this we need to clarify our concept of hypertext. Although Landow (1992) and Snyder (1996) are the best-known authors to discuss hypertext in different works, some Brazilian research has also focused on updating the concept of hypertext, especially in postgraduate linguistic programmes. Gomes (2011), Xavier (2007), Dias (2008), for example, have opted for a definition of hypertext as text that allows non-continuous reading, so that are theoretical choices of the present work, understanding that hypertext is not restricted to the digital medium, but finds in it the technology for its expansion and new reading formats.

So-called "cyberculture" brings with it new ways of dealing with text. Lévy (2010, pp. 151–152) describes digital hypertext as "the great change". We agree with Lévy that language has a new meaning in cyberculture, in which text is not only alphabetical but also iconographic and visual. In this way, dis-tance educational materials that appropriate this language will have at their disposal a different form of communication, in which a different method from traditional textbooks is possible.

When we speak of this audiovisual material, it is almost obligatory to approach the interactivity present in it. Therefore, in order to define what we mean by "interactivity" in such materials, we will resort to the studies of Primo (2011, 2013) which address the term and throw light on this discussion. Primo (1998) refutes the conceptualization that divides interaction and interactivity, he simplifies the debate and focuses on human exchanges. Primo (2013) suggests classifying hypertext according to its potential for interaction. In a previous study (Jamur and Brito, 2017), such classification served as an instrument for analysing digital didactic materials, as follows:

Potential hypertext:
A type of hypertext where possible paths and movements are pre-defined and do not open up space for the interacting visitor to include their own texts and images.

Collaborative hypertext:
Those who register on the site and modify the images previously produced by another artist are involved in a hypertext. Collaboration is a collage, without discussion during the creative process.

Cooperative hypertext:
Offers possibilities for collective creation but calls for a continuous discussion to modify the product as it is developed. Unlike collaborative collage, cooperative hypertext depends on the debate.

(Adapted from Primo, 2003, pp. 9–13)

It should also be noted that in this study we consider "the didactic material as a cultural, physical or digital object, developed to generate learning in a specific educational situation" (Area, 2017, p.17).

3   Methodology

This exploratory, qualitative study aims to focus the study object for the ongoing doctoral research. To do this, we chose one of the institutions that participated in the previous study and actually use digital materials to look for students' perceptions of the materials. Alves-Mazzotti and Gewandsznajder (1999) explain the importance of exploratory studies for research, especially in identifying the context to be observed.

The study is collective, in which the collaborators were the distance-learning students of a Brazilian higher education institution that has more than 200 000 students enrolled in this modality. The didactic materials used by these students have been developed for reading in digital media, that is, a material with structure, font size and specific format for use on mobile devices or computers, without the typical features of print materials (Ferreira, 2008).

In order to collect the information to generate the data presented here, a questionnaire was developed, which is available on the google docs platform. We divided the questionnaire into three parts as follows:

Part 1: Sociocultural profile:
Questions aimed at outlining the profile of students, devices used to access digital materials.

Part 2: Experience with digital learning materials:
Issues addressing familiarity with digital materials, frequency and form of use, assessment of the material used and expectations for the future of digital and printed materials.

Part 3: Study routine:
Students' descriptions of the modality of studying at a distance and the advantages of digital materials, agreeing or disagreeing on a likert scale. In this section, we also asked how they navigate hypertext material and the desires and needs already felt while browsing the material.

All questions had space for voluntary contributions from participants who wished to make other statements, or to enter other options for response.

4 Methods and Sample

Participants in the study were distance-learning students from a Brazilian institution. This is an intentional sample, in which a criterion for selecting collaborators was that the materials used by the institution were prepared specifically for digital medium and not merely in .pdf versions of printed materials. The digital didactic materials of this institution are a hypermedia available in the virtual learning environment, in which different types of resources are used. There are videos, texts, links to other articles available on the Internet, news and in some cases, activities with issues or mini-games.

In all, 32 students answered the questionnaire with 21 questions, including multiple-choice formats, open and closed questions.

5 Results

As a cut of the research in progress, we present the results of some of the central questions that throw light on the question about the hypertextual format and its relationship with the possibility of co-authorship.

One of the central issues of this exploratory study was to find out whether having digital materials specifically designed for this purpose, in the format of hypermedia, would have any impact on the way of studying. Four students reported that the materials did not change their way of studying, while the remaining 28 confirmed that the format did make them change the way they study. Although the students did not report how their study changed, digital culture – unlike printed culture – brings elements of interaction that may offer an explanation: the construction of a certain autonomy of study may be one of them. In this perspective, Area (2017) argues that Internet has as its characteristic the diffusion of text that is "open, intangible, interconnected, audiovisual, multimedia and in constant transformation" (p. 15).

Also regarding changes in the way of studying, one student stated: "The material is more comprehensive, and I like search links." This indicates the perception of this student of an advantage of such digital materials in relation to the printed book: the fact that it has links to other sources of information.

Another issue that deserves attention was that when I come across links in digital material the response options were as follows:

a) I click on all of them, but I do not read all the texts.
b) I open all the links and read all the extra texts.
c) Jump to the next page without clicking.
d) Access only the links of videos, nor click on links to texts.
e) I use another technique that I would like to mention. (open field)

This question was intended to consult students on how they navigate digital materials. Our question was whether inserting links in these materials takes the focus of the student to the main content, or whether linear print formats are more useful, or or whether this would be wasting the best of the digital medium.

The answers were among the options a and b.

There were no respondents who jumped to the next page without clicking or who accessed only the video links, suggesting that although they come from a basic "banking" type of education, in the words of Paulo Freire, the students show interest in the educational process, even with all the reading effort required when browsing hypertextual materials with different links.

We find provocations and different researches on this subject: Castells (2014) himself deals with hypertextuality in his texts from another point of view, while Ferreira (2008) demonstrates the contrary in his studies. But in this cut, empirically, it was still necessary to clarify the question of whether navigation would be differentiated by hypertextual material or not.

Another highlight of this research were the answers to the following question:

> **At some point during your studies, in your readings, you have felt the urge or need to (check how many responses you wish):**
> a) *Contribute with some of your experience.*
> b) *Ask the author a question.*
> c) *Make a comment with the class.*
> d) *Share a portion at your social media pages.*
> e) *Another ..*

It could be said that this was one of the central questions of the study: believing that the digital medium allows cooperation, co-creation, co-authoring, we wanted to know whether in distance education in which the teacher is not physically present, or with sporadic classroom lessons, there would be space for this collective construction.

The majority of the students stated that they would like to contribute their experiences, talk to the author or make a comment to the class; in addition to these, a few responses mentioned the desire to extend their social network.

This presence of a desire to participate, to be an active subject in the educational process, points to a path, full of obstacles without doubt, but a path that can be traced to carry out the walk-in distance learning that intends to form critical, participative subjects and producers of new knowledge, not only reproducers.

6   Considerations about the study

The results, which are still preliminary and only partially analyzed and presented at this conference, point to the need for students to contribute to digital didactic materials through cooperative work. The many answers to the question about their desires when studying that were focused on "Contribute with some of your experience", "Ask the author a question", "Make a comment to the class" indicate the present and desirable space for the use of cooperative materials that allow for co-authorship and for debate about the contents of the materials. In addition, we draw attention to the students' revelations regarding the use of links, which is a key feature of digital materials. There are still questions that require new data to deepen the analysis, and the second stage of this investigation is also necessary, which will be interviews with the students who answered the exploratory study. More clues will be investigated in order to understand the relationship of the students with digital didactic materials, with the critical and reflexive formation, and with the cultural practices of reading.

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Local culture and beyond in Portuguese-produced English language teaching (ELT) coursebooks

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Abstract

The issue of how to deal with 'culture' in the context of English language teaching materials is not entirely recent and much debated (Byram, 1997; Akbari, 2008). Seminal work in the field includes Kramsch (1993) who has extensively discussed the importance of culture, cultural space, the indivisibility of culture and language and learner identity. Our attention has also been drawn to the dangers of a 'hidden curriculum' with respect to cultural content (Cunningsworth, 1995; Hurst, 2008) or the potentially hegemonic socio-political dimension of international coursebooks (Holliday, 1994; Gray, 2002). However, within the context of Portuguese-produced ELT materials, research is less widely available.

Keywords: English language teaching; cultural content; coursebooks; Portugal.

1   Introduction

The centrality of coursebooks in the educational context has long been recognised, in general, as well as in the specific context of English language teaching (ELT). For example, Robert O'Neil, a successful ELT coursebook author and methodologist in the 1970s and 1980s stated:

> *[…] the use of published textbook materials as a basis on which to mould the unpredictable interaction that is necessary to classroom language learning. It is also suggested that learners who do not work from textbooks may be deprived of a useful medium of orientation and study outside the classroom.* (O'Neil, 1982: 104)

More recently, the leading figure in ELT materials development research, Brian Tomlinson, also confirmed the continuing persistence of this view, while emphasising different lines of argument:

> *Proponents of the coursebook argue that it is a cost-effective way of providing the learner with security, progress and revision, whilst at the same time saving precious time and offering teachers the resources they need to base their lessons on.* (Tomlinson, 2012a: 158)

2   Coursebooks and Teaching

Indeed, not a few teachers would say that it is impossible to teach without a coursebook and for not a few learners (with limited economic resources) coursebooks provide their only opportunity to read and be in touch with the printed word (with literacy being among the highest rated values in contemporary European society). Among the general public, great trust is placed in the authority of the coursebook, perhaps even to the extent that what the coursebook says has more validity than what the teacher says. Indeed, many parents pay out large sums of money each year to corroborate this status (perhaps some 150–200 euros per child).

Research in Portugal (Dias de Carvalho & Fadigas, 2009) indicates that coursebooks play an important role in the relationship between schools and parents:

the results of an online survey indicated that 59.48% of parents considered coursebooks to be 'very important' in helping them to accompany the schoolwork of their children (ibid: 8) and 94.61% of parents actually consult their children's coursebooks to ascertain what their children are doing at school (ibid: 9). This research further demonstrates that parents also learn from the children's coursebooks, that the subject matter of coursebooks provides topics of conversation among family members, that parents usually use the coursebook if they want to help their children study, that most parents (79.17%) prefer coursebooks to other educational resources (ibid: 14) and concludes that Portuguese parents consider the coursebook is "a learning resource which cannot be dispensed with in the education of their children" (ibid: 23) .

3   ELT coursebooks in Portugal

In the Portuguese ELT coursebook market both international and local publishers compete for the same sales but while international publishers have by no means the upper-hand in the Portuguese market, they at the same time exercise considerable influence over the type of coursebook made available to the local market. The levels of competition and demands of a global market mean an international coursebook has to evidence both very high quality production values, as TOMLINSON (2012b: 171) notes: "[i]n my experience of language classrooms in over 60 countries, global textbooks attract teachers and learners everywhere because of their high production values and face validity" as well as an almost 'teacher-proof' approach to the use of coursebooks, a characteristic which was identified long ago by SWAN (1992), quoted in HUTCHINSON and TORRES (1994: 33) and requoted in BELL and GOWER (1998: 116) "books sometimes take important decisions regarding the whats and hows of teaching out of the hands of teachers who, having been absolved of responsibility, then sit back and simply <operate the system>". These characteristics, along with the implied de-prioritising of pedagogical values that drive

ELT materials production (see TOMLINSON, 2012b: 271 for a succinct summary of six pedagogical principles), are then replicated in Portuguese-produced coursebooks since they are competing within the same national market.

However, in relation to 'cultural content' in ELT coursebooks, much of the published research has focussed on two distinct strands. Firstly, research has examined international coursebooks produced in the UK or USA for the international market; for example, see GRAY (2002 & 2010); ULRICH (2004) or CAUKILL (2011). Or, secondly, the research has focused on how particular examples of these publication function in specific teaching-learning (national) contexts; for example, BASBE (2006) on Argentina or ARIKAN (2005) on Turkey. In contrast, my previous research which provides the academic context for this paper focused on a specific teaching context, Portugal, only coursebooks produced specifically by local authors/publishers and a specific conceptual issue: How has cultural representation evolved over time (1981–2006) in these Portuguese-produced ELT coursebooks?

4   The research background

This recent research (HURST, 2014a) used a corpus of four sets of three coursebooks, each set taken to represent a particular response to a moment of curricular change in relation to ELT in the third cycle (7th, 8th and 9th grades) of compulsory education in Portugal. This cycle of education is the only one which has consistently maintained ELT in its curricula over the period since the political upheaval in Portugal associated with the revolution of 25th April 1974 until 2006. In addition to its intention to reflect curricular

change, the corpus was also moulded by a variety issues, initially their physical availability/existence, but also by a concern not to analyse coursebooks still currently on the market, which might produce commercially sensitive information; and also by an ethical concern to avoid conflicts of interest, given that the corpus contained only Portuguese-produced coursebooks, written by local authors, generally experienced teachers from the state sector, some of whom were still working in local schools.

5   ELT and the concept of culture

Definitions of 'culture' are not in short supply; ranging from distinctions between 'high' and 'popular', between 'explicit and 'implicit', between 'visible' and 'invisible', between 'material' and 'immaterial' or even between capital 'C' and small 'c' culture. However, culture has many more dimensions than a simple dichotomy can explain (HURST, 2014b). Culture is a social context in which people live out their lives in the real world: from the point of view of language teaching any interest in the culture (and the

language) is not derived from a desire to understand these phenomena as mental processes or abstract structures but rather to include an anthropological perspective within our understanding: culture is a "historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate, and develop their knowledge about and their attitudes toward life" (GEERTZ, 1973: 89). Language and culture are

social phenomena which are shared by all humanity and lie at the centre of our social life. "Human culture always includes language, and human language cannot be conceived without culture. Linguistic practice is always embedded in some cultural context or other" (Risager, 2006: 4). The real world demands that language users are in some way culturally competent to an equal degree that they are linguistically competent and perhaps that one (language) cannot

exist without the other (culture) and that this reality should therefore be mirrored in language teaching materials produced for the classroom context.

To speak a language well, one has to be able to think in that language, and thought is extremely powerful. A person's mind is in a sense the centre of his identity, so if a person thinks in English way in order to speak English, one might say that he has, in a way, almost taken on an English identity. That is the power and the essence of a language. Language is culture. (Wang, 2008: 59)

6   Specific ELT coursebook research in Portugal

Hurst (2014a) examined in depth the way culture was represented in a specific corpus of coursebooks following the guideline that representation is "the production of meaning through language, discourse and image" (Hall, 1997: 16). In this research, 'language' was interpreted as an analysis of dialogues present in the corpus, reading texts were taken to be 'discourse' and the coursebook illustrations were 'image'. The analysis of the dialogues was informed by reference to Leech (1998) and Gilmore (2004); the analysis of the reading texts was informed by reference to Stern (1993), Byram (1993), Rivas (1999) and Corbet (2003); and the illustrations were analysed following inspiration from Perales & Jiménez (2002), Hill (2003) and Keddie (2009). The research is an original attempt to discern how the verbal and visual elements are 'connected' in the production of cultural representation.

In general, major improvements occurred between 1989 and 2006 in relation to the overall pedagogical quality of ELT coursebooks produced in Portugal with respect to cultural representation. For example, in relation to dialogues, there was found to be an almost total lack of vernacular language which negates learners the opportunity to experience how different socio-cultural identities are negotiated as it is through such informal talk that degrees of solidarity with social groups are established and maintained (Thornbury & Slade, 2006). Learners need to become increasingly aware of the importance of 'meaning' (in its broadest sense) and how it is conveyed and not just how 'form' is constructed. The idea that a simplified non-authentic dialogue gives the learners a better chance of achieving full com-

prehension, while superficially appealing is also not necessarily productive in the long term since full comprehension is rarely required in 'real world' contexts of language use. In relation to reading texts, there is a discernible shift away from artificial 'class texts' produced by the coursebook authors or their associates to more authentic (web-sourced?) texts but with little variety in terms of type of text, the majority being descriptive or expository and little concern to do anything more with the 'content' than to show/describe what people do (in order to 'cover' the topics laid down in the national programme) but with little regard to the belief/value systems that affect/govern the way people act/live. Rarely are learners been confronted with issues related to identity and beliefs, the fundamental elements of any inclusive approach to cultural understanding and interculturality. Finally, in relation to illustrations, the enhanced production quality and increased use of colour photographs found in the more recent publications belies the continued disconnect with any pedagogical purpose: illustrations remain largely decorative in function. But using illustrations as prompts without necessarily having any associated specific language input (vocabulary matching exercise?) could certainly can cause learners to produce and provide their teachers with evidence/information as to how to proceed in order to build on what the learners already know. These coursebooks would have been greatly enhanced by requiring the learners to confront and react to the illustrations rather than just look at them in passing as they work on texts or exercises.

7   Recent developments

By way of updating the research referred to above, 3 more recent editions of Portuguese-produced 7th grade ELT coursebooks were examined for the purpose of my IARTEM presentation in Lisbon (in September 2017). The coursebooks were '*New Wave 1*' (2011 edition), '*New Getting On 7*' (2011 edition) and '*Spotlight 1*' (2010 edition). Under consideration here then is a qualitative analysis of how these coursebooks deal with cultural representation in the unit-sized topic of Home-Family Life, as determined by the national programme for the 3rd cycle. The conference presentation format allowed time for the only two perspectives to be discussed: how the topic is initially introduced and how the topic is further developed in subsequent activities.

The materials/activities from these coursebooks do not help learners to become more aware, more reflective, more critical and more equipped to perform their own meanings, as is expected of transcultural users of language incorporating the role of cultural mediators (Zarate et al, 2004). In *New Wave 1* (2011, 22–24), there is no attempt to focus on the cultural content: the family in question is fictional (The Mimsons, an attempt to invoke TV's The Simpsons?) and the main task is match snippets of text with the cartoon illustrations. There are 6 true/false 'comprehension' questions and then the focus shifts to possessive adjectives which are again required/demanded in the 'development task' of writing 5 sentences about 'your family'. In *New Getting On 7* (2011, 42–43), there are more opportunities to explore the content, at the Lead-in stage and through the provision of more substantial, richer texts. However, the subsequent 'comprehension' questions are a matter of matching phrases to speakers in the texts and vocabulary work. The 'development phase' basically repeats the Lead-in but in the form of a pair-work activity. In *Spotlight 1* (2010, 38-39), there is potential to explore 5 texts about 'Families around the world' but the main task consists of matching colour photographs with these texts: a minefield of stereotypes is made available to the learners which a novice or underprepared teacher would find hard to avoid. In any case, the subsequent activities highlight possessive determiners and the possessive case before allowing the learners to listen to 3 teenagers talking about their families and then, finally, writing a 'short text' about their family. The aim having a strong focus on cultural content is not to change the learners' identities, rather it is about providing opportunities for the learners to become better equipped to construct their own self (Risager, 2006). There is no need for English teachers and learners to become in any way auxiliaries for some kind of cultural or linguistic English-speaking empire (Edge, 2006). Learners need to be engaged in the social practice of using the English language while at the same time respecting the local economic, social and educational context (Pennycook, 1994).

A general conclusion about these examples is that local writers/publishers need to re-formulate their concept of 'target culture' towards a more international model which does not imply a cultural approximation or assimilation but rather adopts a more dynamic, intercultural slant. Learning English in this educational context, the 7th grade in the Portuguese state school system, has little or nothing to do with so-called 'integrative motivation'. The attitude to 'cultural content' is still rather tangential or incidental; there needs to be more recognition of the centrality of cultural content, since content rich materials are far more likely to provoke language rich responses.

8   Future tendencies

As we move towards increasingly digital, multimedia, interactive formats of materials delivery, dealing with cultural representation will mutate into something even more dynamic and complex. We have to reject representations that see culture as something static, homogeneous and apolitical, that communities either have or do not have (Canale, 2016). Increasingly, learners of English in Portugal, and around the world, will have access to authentic materials through digital technologies via the Internet that are not coursebook derived and that enable them to develop a critical cultural awareness by themselves. Coursebook writers must adapt to this new era and its almost limitless resources in ways that are still hard to imagine, but which represent a huge opportunity in helping learners to learn in different ways. For example, the availability of online dictionaries could radically reset the lexical range/coverage and level of difficulty of some reading texts; or the instant availability of video clips, that provide a degree of contextualization that no 2D resource can achieve, could reset the way practice

activities are set up. However, computer assisted language learning (CALL) and teaching software have not turned out to be the educational panacea that some authors had predicted (Mukundan & Nimehchisalem, 2008, 2011), neither have coursebooks disappeared, perhaps because of their symbolic function, as they represent 'stability' and 'structure' (Parrish & Linder-VanBerschoot, 2010), an important epistemological value within the educational system in Portugal which has been subject of much uncertainty and hierarchically imposed change since 1974.

9 Conclusions

ELT coursebooks are characterised by their use of the target language to organise and direct the way the learners (and teachers) approach the proposed classroom activities aimed at teaching the target language. The instructions, the exercises rubrics and so on are formulated in the L2 in such a way as to be clearly understandable and 'doable'; there can be no room for doubt otherwise the lesson will not proceed smoothly. In addition to this collateral 'exposure', learners must experience and practice the language through a wide range of communicative events: this is a sociocultural perspective on learning. The coursebook should 'scaffold' learning, providing support for collaborative learning experiences as well as explicit teaching (Horsley & Walker, 2006).

Coursebooks must include a greater variety of exercises and texts, place more emphasis on the authenticity of the language modelled and employed, use more visuals to help transmit meaning and construct meaningful contexts. The predominant position of local publishers in the Portuguese market allows for a more contextualised educational resource which takes on board these insights, broadly speaking to 'humanise' the materials more, to allow more 'space' for personalization and choice. Coursebooks are undoubtedly cost and time effective educational instruments which through necessity form the basis of many classes delivered in heavily loaded ELT timetables. However, coursebooks should not be taken at 'face value' (i.e., they are just a means to teach another school subject, a foreign language): they are dynamic, cultural artefacts which should be critically reviewed and evaluated in a much more systematic manner. Coursebook writers and their publishers should be much more engaged with the teachers (and learners) who actually make use of the coursebooks; for example, user feedback should be much systematized and influential than is currently the case.

Coursebook writers in Portugal still have an important role to play; their responsibilities should also include re-training and development sessions so that the creative spark that guides the production of their materials. Writers must take into account new insights from research in the field rather than simply perpetuate a strong-selling format (an increasingly glossy, teacher-targeted package). In the same light, publishers should also be more willing to evaluate their 'products' using criteria other than sales figures.

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Videogames and education: initial reflections from a review of international research carried out between 2010 and 2016.

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Abstract

IOur aim was to review the international literature regarding research carried out on videogames and education. The principal objective was to identify the main lines of research in the field, focusing our attention on work published since 2010. For this purpose, the study sample consisted of publications included in the following academic search engines and databases: TESEO, ERIC, REBIUN, ProQuest Dissertations & Theses Global, Dialnet, CSIC-ISOC and ScienceDirect. After analyzing the contents of the documents, we identified nine major lines of research. It was observed that the relationship between videogames and potential behavioural effects, such as aggressiveness, was widely studied, as were the cognitive effects on users such as motivation, attention and problem-solving. An increase was also observed in the number of publications on the design and evaluation of videogames specifically developed for the learning of curricular contents. Recent lines of research include the effects of videogames on students with functional diversity, the use of videogames to increase physical activity, and the creation of videogames by students themselves

Keywords: Videogames; Education; Lines of research.

1   Introduction

In the early 90s, research on video games began to proliferate and diversify. Studies arose from fields such as psychology, technology, philosophy, and sociology. The fact that researchers approached the study of video games from diverse backgrounds has generated a variety of research lines, including those related to video games and education.

The studies involving lines of research arising from the relation between videogames and education have focused mostly on research carried out in the 80s and 90s, but there is a lack of analysis regarding research carried out since the year 2000. What has been published usually involves specific periods in recent years and specific aspects, but not the general perspective of video games and education. And thus arises the need for and relevance of our study.

2   Objective

The aim of this article is to carry out a review of the international literature regarding research on video games and education. The principal objective is to identify the main lines of research in this field, paying special attention to publications since the year 2010.

3   Methodology

We did a systematic search of video games and education, in order to determine what was being investigated and what was being overlooked in this area. The search was carried out in the following databases: TESEO, ERIC, REBIUN, PROQUEST, DIALNET, CSIC and ScienceDirect.

We did not restrict the search in terms of publication date, and we selected papers in Spanish and English. The search used terms such as: "serious games", "video games", "videogames" and "videojuegos" combined with "education" or "educación".

A total of 2237 references were found, of which 366 were considered relevant because they addressed the effects of using digital games in teaching-learning processes.

For the content analysis of the documents, we used a deductive-inductive category construction process taking into account the issue with the main issue in each publication.

Many of these empirical investigations arose from theses and dissertations in American universities.

Therefore, most were carried out by novice researchers during their period of training.

We should point out that it was difficult to compare and generalize the results obtained in the different lines of research. The study conclusions were very diverse, as were the study criteria and the variables analyzed. Moreover, there was lack of agreement among authors regarding issues such as game genres, and research was carried out in diverse contexts.

4   Results

We have organized the lines of research in the field of video games and education as follows:

1. Procedures and tools for the development of educational video games.
2. Efficacy of video games created by the research team itself.
3. Effects of video games.
4. Educational strategies for the use of video games in education.
5. Perceptions regarding the use of video games as didactic resources.
6. Profiles of video game players.
7. Video game content analysis.
8. Video game user habits.
9. Creation of video games in the classroom.

We will briefly explain each of the above and make reference to sample publications.

1. Procedures and tools for the development of educational video games

This includes studies involving the design of methodologies to guide the design and evaluation of educational video games or provide frameworks for the development of video games. For example: Manrubia (2014); Torrente (2014); Xu (2015); Padilla et al. (2015). Within this category we also include studies focusing on the specific elements of game design. For example, the features that video games should possess in order to be attractive to students, if having a storyline improves games, if game aesthetics can have a significant impact on learning outcomes, and so on. For example: Cagiltay, Ozcelik & Ozcelik (2015); Zeglen (2015).

2. Efficacy of video games created by the research team itself

These studies focus on describing video games developed and evaluating their effectiveness.

> Frequent: Learning a language. For example: Sandberg, Maris & Hoogendoorn (2014); Vanderburg (2015); Perry (2015).
> Curricular subjects: History; Physics; Chemistry; Mathematics; Language; Nature; Geography; Biology... For example: Magnussen, Hansen, Planke & Sherson (2014); Smith (2014); De Castro (2015).
> Transversal: Prevention and/or treatment of drug abuse; Computer Programming; Sex education; Internet security; Coexistence at school... For example: Kamberi (2015); Chaudron, Di Gioia, Gemo & Lagae (2015).
> Higher Education: Bacteriology; Hydrocheology; Construction processes... For example: Sugimura et al. (2014).
> Health. For example: AlJaberi (2010); Saksono (2014).
> Others: Theater; Hockey; Support for intergenerational games... For example: Siyahhan (2011).

3. The effects of video games

These study the effects of video games on:
> People with functional diversity. Among children with Autism Spectrum Disorder (ASD), Down Syndrome, Specific Speech Disorders, Attention Deficit Hyperactivity Disorder (ADHD), etc... Focusing on cognitive functions (memory and executive functions), classroom participation, attention... For example: Armendarez (2015); Rodríguez-Jiménez (2015).
> Reseach on the potential harmful effects of high levels of video game use. For example: Brom, et al. (2014); Maras et al. (2015); Demirtas, Ulasb & Kizildagc (2015).
> Research on how learning and school performance may be affected. For example: Barron (2015), Zhao & Linaza (2015), Cipollone (2015).

> And research on the potential benefits of active video games (based on the movement) in terms of increasing physical activity among students. For example: Vernadakis, Papastergiou, Zetou & Antoniou (2015).

4. Educational strategies for the use of video games in education

The purpose of these studies is to determine how to use video games (commercial) as didactic materials. Within this category, the studies have been classified into 3 subcategories:

> Analyze how to introduce video games into the classroom. For example: Monjelat (2013); Méndez & Lacasa (2015).

> Investigate the role of teachers as guides in game-based learning scenarios within training processes. For example: Quintanal (2014); Huerta & Portela (2015); Del Moral & Fernández-García (2015); Shah (2015).

> Make proposals for instructing families on the healthy use of video games. For example: Alles (2013).

5. Perceptions regarding the use of video games as didactic resources

These studies investigate opinions on the potential benefits of video games for learning and perceptions regarding their use in the classroom. They also analyse the assessments regarding particular games. The research focuses on one or more of these groups.

> Teaching staff in compulsory education. For example: Takeuchi & Vaala (2014).

> Students in compulsory education. For example: Bourgonjon, Valcke, Soetaert & Schellens (2010).

> Future education professionals. For example: Marín-Díaz, López-Pérez & Maldonado-Berea (2015); Wu (2015).

> University students and teachers in general. For example: Riemer & Schrader (2015); Bossolasco, Enrico, Casanova & Enrico (2015); Elmgreen (2015).

> Family (parents …) For example: Friedrichs, Gross, Herde & Sander (2015).

> Video game users. For example: Del Moral & Guzmán (2015).

> Video game specialists. For example: Alias, Rosman, Rahman & Dewitt (2015).

6. Profiles of video game players

These studies analyze the sociological and psychological characteristics of video game players by comparing them to non-players.
They aim to understand behavior, motivations, conduct, preferences, game habits, profiles…
For example: Navarrete & Molina (2015); Haddad (2016).

7. Video game content analysis

These studies analyze the characteristics of video games already developed.
They analyze structure, genre, implicit messages, transmitted contents and values, plot, behavior of the protagonists, clothes, actions that take place, scenography, lighting, rules of the game, and so on. Some of these studies use specific tools for analysis.
For example: González-Tardón (2014); Planells (2015).

8. User habits

These present the findings of surveys conducted regarding the number of hours played per week, platforms used, favorite games, etc… For example: Muñoz-Miralles et al. (2014); Rehbein, Staudt, Hanslmaier & Kliem (2016).

9. Creation of video games in the classroom

These studies aim to demonstrate the knowledge and skills that students can acquire by designing their own digital games: academic learning (mathematics), critical media literacy, creativity, digital literacy, motivation, …
They propose models for teaching computer programming. For example: Molins et al. (2014); Lamb, Annetta & Vallet (2015).

Conclusions

To finalize, we would like to simply highlight some findings and conclusions:

> Regarding the research analyzing the possible negative effects of playing video games, no empirical studies have been found that categorically assert that video games cause addiction, violence, problems for physical or mental health, school failure, or similar. Nevertheless, recommendations are made for limiting consumption due to the exponential increase in video game use. In addition, there are recommendations for education to promote critical consumption of media.

Over the years, educational video games have been criticized by various scholars. With the popularization of serious games that approach the level of commercial video games (mainly in terms of graphic design), the negative opinions regarding these digital games designed for didactic purposes has begun to diminish.

> Regarding research on the use of video games and sedentary lifestyles, many authors suggest that there are advantages to using video games based on movement in physical education classrooms to increase students' physical activity, but the question remains whether this motivational effect will endure over time. In general, European and American research on the relationship between video game use and childhood obesity conclude that there is no significant relationship, but these studies contrast with Asian results. In this line of research, there is a need for empirical studies based on the opportunities and limitations of using video games on mobile devices and comparing those that use (or not) geolocation and Augmented Reality, Virtual Reality, holograms or even wearables.

> Insofar as emerging lines of research, the creation of video games by students themselves is

showing the potential of this methodology for acquiring learning and developing skills related to digital literacy, mathematics and science, creativity, logic, computational thinking and social skills. Most researchers agree that game design can have a positive effect on learning.

> Insofar as video game content analysis, there continues to be a preponderance of male characters in videogames, and despite signs of change, sexist stereotypes still endure.

> In spite of the numerous advantages listed in publications and studies regarding the use of video games as teaching materials at all educational levels, teachers point out barriers to their use such as the following:
>   > Insufficient teacher training for using video games in the classroom.
>   > The low quality of digital educational games.
>   > Negative perceptions on the part of parents.
>   > Lack of technological support.
>   > The inadaptation of games to the curricula.

> Students are not always aware of the learning they acquire, nonetheless, they are enthusiastic about the potential for the integration of games into formal education.

> There is considered to be a lack of empirical studies focusing on the effects of digital games in the classroom, and a scarcity of research related to the methodological strategies for using video games in the school context.

> Video games are still an untapped resource in the field of education, and this will remain the case until adequate resources are provided for teachers, such as: video games that are more effective from an educational standpoint (open, adaptable, addressing a variety of different needs, with positive social values, and so on); and until adequate support is provided for video game use and analysis.

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Music and arts

A survey of educational materials for children's choirs with an emphasis on playfulnes

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Abstract

This study addresses one of the interfaces of PhD research in Music (Music Education and Cognition) in the post-graduate program in music at Paraná University (UFPR), Brazil. Choir singing is an activity practiced all over the world in the most varied formations and with different objectives. However, the focus of this project is on children's choir singing. In this project, we explain some of the theoretical discussions on the aspects and effects of playfulness through interventions in the practice of children's choir singing, such as the use and handling of textbooks. According to CHOPPIN (2004), the textbook is, past the narrow prescriptions of a program, the vehicle of a value system, an ideology, a culture. Therefore, the goal is to find evidence on the results of ludic actions in books and/or teaching handbooks on choir conducting, resources that promote musical knowledge and which, at the same time, provide children's choirs conductors and musical educators with a new outlook on the possibilities of instrumentation as an applicable educational process.

Keywords: Children´s Choir; Playfulness; Choir Conducting Textbook/Handbook

1 Introduction

In light of the theme "The Playful Dimension in the Training and Professional Practice of the Choir Conductor," among the many ways of looking at it, we explore the role of playfulness in choir conductor training. It is known that practical work with children is, or should be, permeated by ludic activities. In fact, as previously observed in research carried out for my Masters[1] degree, it actually is. Having said that, the question is: where does it come from? When investigating the professional training and actual practice of children's choir conductors, one notices that it is not found in choir conductors´ technical and academic training textbooks. Hence the concern and conciliation between the research theme and the investigation about the textbooks that substantiate this practice.

One of the interfaces of the research, as already mentioned, is the reflection on the playful aspects of and in the training of children's choir conductors. From this perspective, we propose to elucidate aspects and effects of playfulness in the musical prac-tice of children's choir based on the use and handling of textbooks intended for this purpose. From CHOPPIN´s studies (2004) we draw attention to the textbook seen as an educational tool. In addition, it becomes clear that the book is a necessary teaching resource.

In order to achieve the research objectives, the methodological approach used was bibliographical investigation, in the form of an essay, based on the conversation between the Music Education literature and the Books and Textbooks literature that is still in an initial stage, also taking into account the development stage of the research project.

After the bibliographical review, an empirical study that is still under development and is characterized by the its closeness with the field of study in its practice will follow, to identify important statistical data on playfulness in the choir conductor´s training and professional practices as indispensable knowledge when it comes to teaching music to children.

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2   Music and the Textbook

By means of a survey on the production of textbooks for teaching music all through the history of Music Education in Brazil, the importance of the textbook as part of the pedagogical process becomes clear owing to its relationship with and presence in the classroom, in addition to its role in the acquisition of knowledge, which can happen in many ways, be it mediated by the teacher or through direct reading (Romanelli, 2018). Analysis is seen as an important mechanism to find out about the several dimensions of music teaching, the context in which it happens, the student-teacher relationship and knowledge field. The possibility of examining the thoughts relating to a given historical and cultural point in time and the teaching trends and educational policies that influence this production become evident in this process. This idea restricts the understanding of the book as a cultural object that may contain the representation of a certain period and its context (Teuber et al., 2015).

In view of the historical facts, it can be said that books still belong to an area that is very little studied in Brazil. From this perspective, it is understood that a critical analysis of the textbook cannot be isolated from the general context of the Brazilian education system. Thus, from the analysis of several aspects of these textbooks, it is possible to reach a broader dimension, considering the music teaching textbook as a cultural object that reflects the history of Brazilian Music Education in its complexity.

The textbook is then perceived as an active mediator in the process of construing concepts, behaviors, and thoughts about the Brazilian musical culture, and that it should not be dissociated from its broader meaning, which involves pedagogical, economic, and political-ideological aspects.

Based on this investigation and analysis, the textbook is seen as an important reference for understanding the teacher's relationship with music teaching, the student's relationship with the content, and the relationship of practice with the educational policies, and its relevance for the construction of knowledge and representations, which are often mediated by the contact with and the reading of books.

3   In the Book and in Practice

Many research projects register the different spaces where the process of music teaching and learning takes place, and the different ways in which it happens. It is important to emphasize that there has been an increase in the scope of Music Education in the most different contexts. Kraemer (2000) places Musical Education within these new spaces, observing that it is an area of "knowledge that "deals with the relationships between a person(s) and music under appropriation and transmission aspects" (Kraemer, 2000, p. 52).

Currently, these multiple spaces and possibilities have broadened the field of study. Studies and research in the field of musical education point to choir singing as a space for teaching and learning music. Therefore, thinking about music education through choir practice would mean seeking an awareness of the time in which we live and thinking about the parties involved in this complex and dynamic historical-cultural context.

Figueiredo (2006) states that the experience of singing in a choir favors the development of musicality and the capacity to communicate using the voice in a process of musical education, which is a set of practical stimuli to sensitize the person to music.

Godoy (2007) complements this notion by saying that choir practice is a vehicle for the development of musical skills and knowledge. Thus, the teaching of music and choir practice are inseparably interconnected, where the conductor is a teacher that must organize the choir for educational purposes. For Godoy (2007, p. 3), the conductor "must also be a competent educator".

The growth of children´s choir practice has created different access possibilities to the universe of art and music. Conversely, it also leads to the emergence of concerns and referrals within a musical and educational perspective. The different contexts, where the educational-musical practices are included by way of choir singing, generate discussions that emphasize pedagogical-musical practice issues, but which also deal with the conductor´s training to exercise his/her functions.

In children's choir practice, authors like Rao (1993), Leck (1995), Campos (1997), Schimiti (2003), Lackschevitz (2006), and Lima (2007), approach the theme through their professional experiences in the area, stressing that the conductor must be attentive to the needs that are a consequence of his activity. Considering that "the child learns by play-

ing and when playing he/she is happy" (Cely, 1997, 127), the reflection is deepened by studies about the presence of playfulness in the conductor's formative process to perform his/her practical functions in the children's choir.

Some authors, directly or indirectly, have contributed to the discussion about the children's choir as a space of learning through playful interventions involving games and playing, in a broader perspective, which includes the pedagogical-musical question: Schimiti (2003) warns us that in working with children it is necessary to realize that abstract theories, if replaced by more concrete references, bring a more immediate result, a more secure and playful understanding; Figueiredo (1990) shows the importance of adequate rehearsal preparation from an educational standpoint. A pleasurable and well-founded practice will stimulate constant search for activity and improvement (apud Gois, 2015); Lakschevitz (2006) calls attention to the conductor's attitudes and procedures used when working with children, pointing out that "pleasure, games, playing" should always be present (Lakschevitz, 2006, pp. 55–56). Authors like Huizinga (2001), Macedo (2003), and Brougère (1998) are references when it

comes to playfulness in the children's choir context. Their theoretical contribution comes from a wider view of children's culture, understanding it as an authentic field of human behavior. For those authors, the playfulness is a central aspect of the culture, particularly during the infancy.

The ideas of the authors presented above allow us to look at musical practice in the form of children's choir singing as a relevant educational-musical proposal. However, it can be observed that little is said about practical actions based or with an emphasis on playfulness regarding the training of the children's choir conductor. It is clear that playfulness is present in the conductor's teaching practice, but not so in the conductor's training. The premise here is that in the relationships children establish among themselves, a way of being and acting in the world is irrevocably consecrated: playing. This is a fundamental element that characterizes the specificity of children's cultures and constitutes a central factor intrinsic to the very idea of childhood (Sarmento, 2002). Therefore, playfulness is an essential knowledge for the conductor in his/her children's choir teaching practice.

4   From Book to Practice

From what has been seen so far, in the investigation and research analysis process, the textbook is understood as an important reference to understand the relationships between teacher and music teaching, student and content, and practice and educational policies, since it is recognized as relevant to the construction of knowledge and representations that are often mediated by the contact with and the reading of these books.

The textbook is then perceived as an active mediator in the construction process of concepts, behaviors, and thoughts about Brazilian musical culture, and so it should not be dissociated from its broader meaning, which involves pedagogical, economic, and political-ideological aspects.

Historically, based on the substitution of Orpheonic Singing for music education, the influence of the twentieth-century artistic currents, and the increased interest of musicians in education (Fonterrada, 2008, p.214), production is linked with the legislation and with the new features acquired by music education, resulting in the growth and significant diversification of the Brazilian didactic production. Later, in the 60's and 70's, some works have

music as an autonomous subject-matter integrated to other artistic languages as their principle and, in the 80's, textbooks became the main segment of the Brazilian publishing market, with features that differentiated them from textbooks from previous periods, where "music teaching has witnessed the emergence of recreational and playful practices that totally escape the issues and objectives proper to music" (Loureiro, 2003, p. 72), owing to the multipurpose proposal that prevailed in that period. In the 1990s they exhibit new characteristics owing to the importance ascribed to audiovisual resources. This fact is related to the technological advances and the possibilities presented by these resources in education.

After the changes approved in August 2008, according to Law 11,769, whereby music became a mandatory subject-matter, a series of issues began to be underscored. Education came to be seen from a broader human development perspective. Music is now understood in its theoretical and historical aspects, and sensitive to its musical elements (that is, the elements of sound) in the musical pieces heard, including their historical and cultural context, with-

out neglecting emotions and impressions. Musical Education is then seen as essential for the development of cognitive, psychomotor, emotional, affective, and consequential skills for socialization. Influenced by this new momentum, the production of

books is renewed by the demands of the market, by the change in children's behavior and the renewal of the school, and by the context to which it belongs (Souza, 1997, p. 10).

5   Conclusions

The study reported herein reveals, all the way through musical education, the development of a proposal that converses with practice. It acknowledges the existence of different notions and practices related to music education that can be examined through a historical record, i.e. the textbook, which is common in teaching relationships as a result of its production and of the elements involved in its creation and use. Considering that the study of a historical perspective can help us to understand the present and to better grasp the notions and structures of our day, it can be concluded that an analysis of playfulness aspects of musical education contributes to the awareness of the complexity of the process, thus allowing more room for discussion and aligning thoughts and practices with current thinking.

At first, it is clear from the contact with music-teaching materials available, in formal and non-formal contexts, that there is a lack of didactic material conceived specifically for children's choir conducting. The bibliography found on choir conducting addresses the work of the conductor in its general aspects with an emphasis on technical questions

regarding gestures and moments during rehearsal, but when it comes to the applicability to the children's choir context, nothing could be found.

Until then, thinking about books or teaching materials intended for teaching meant immediately considering the school and, consequently, the classroom. The horizons were only broadened on account of the many issues involving the use and handling of teaching materials and their applicability, bearing in mind the variety of contexts where they could be found, and their historical trajectory. The starting point was the importance of thinking of books in an attempt to shed light on what they contain as the custodians of ideas, emotions, meanings, stories, and projects they hold (Garcia & Schmidt, 2013).

This matter broadened the focus and took it beyond the school structure. In order to see it, in the sense of understanding its existence, it is necessary to appropriate its structural causes, to understand it in its conceptual complexity, in its multiple functions, in its coexistence with other educational supports, and to take into account the diversity of influences from the agents that envelop it.

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Digital tools and media in music education: small-scape uses, niche market[1]

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Abstract

In this paper, I try to define the main characteristics of digital tools and media used in music education in conservatories. Borrowing elements from a PhD thesis situated within the framework of the theory of cultural (and educational) industries, I address the following problem: why such a contrast between a very large "social" injunction to a digital conversion of teaching, and very limited and disparate practices of digital tools and media in conservatories? Firstly, elements of discursive context are presented, secondly, I introduce main characteristics of digital media in terms of reproducibility (technological and rationalizing aspects); finally, I address institutional conditions for the limitations of the use of digital tools and media in conservatories. The question of the industrialization of education in the world of conservatories is raised, and I argue that the conditions for such a process are not met here.

Keywords: Music education, conservatories, digital tools, industrialization

1 Foreword

French conservatories are an unknown landscape, partly because their very contrasted and local characteristics. Less studied than other educational institutions, they are mainly dealt with from the standpoint of sociology of culture (e.g. Menger 2009). This paper focus on the conditions under which specialized digital tools and media are used in French music conservatories, and address a more specific question: why such a contrast between a very wide "social" injunction to a digital conversion of teaching, and very limited and disparate practices of digital tools and media in conservatories? In other words, why do digital practices (i.e. the use of digital tools and media as mediation tools) appear to be so non-standardized, even more than in compulsory schooling?

This paper borrows elements from a PhD thesis, in the framework of the theory of cultural (and educational) industries (Huet et al. 1984; Mœglin 2005), which try to clarify evolutions in cultural, communicational and educational matters, with the aim to articulate strategies of the industries, activities of creators, strategies of publishers, producers and broadcasters, cultural practices, development of the use of tools and medias. More precisely, this work is primarily concerned with the question of industrialization of education (Mœglin 2016), that is the co-existence of three indicators: technological conversion of teaching and learning activities, rationalization of educational work and ideological pressure for change.

The situation of music education in conservatories is particularly interesting: it seems to be significantly different from school education, in the sense that practices and the frame of reference call for the world of craftsmanship. However, this education is closely linked to the musical and audiovisual industries. Indeed, it contributes to the training of performers and creators, of personal support (Becker 1988) and amateur musicians who play a crucial role while being music consumers.

Methodology is based, on the one hand, on a campaign of comprehensive interviews with teachers and conservatory managers, and on the other hand, on a corpus of media and institutional discourses about conservatories. I will first present elements of discursive context (ideological aspects in the industrialization of education framework) then characteristics of digital media in terms of reproducibility (technological and rationalizing aspects), and, I will finally address institutional conditions for the limitations of the use of digital tools and media in conservatories.

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[1] This paper differs a bit from the one presented at IARTEM 2017 in Lisbon: the explanations necessary to understand the institutional framework of conservatory education in France required a longer development than expected, leaving aside the question of innovation and prescription.

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2   Critical statements about conservatories

So-called conservatism

Teaching in conservatories has been the subject of repeated controversies in France, particularly about its supposed pedagogical conservatism. It has thus become commonplace to play on the homology between conservatory and "conservatism", even among politicians in charge of cultural matters. For example, Bruno Julliard, deputy mayor for culture in Paris says in *Le Monde*, Nov. 17, 2014, that "part of the conservatories [of the city of Paris] bears its name well...", that is, are so conservative that they deserve to be called conservatories.

Three points are particularly criticized. First, a curriculum that requires the prior learning of solfeggio (acquisition of the basics of musical language) before practicing an instrument. Second, the primacy of parents' social preferences in choosing the instrument over possible children preferences. Third, old pedagogical methods, based on imitation (in music composition as in playing an instrument), systematic repetition (playing scales), and the use of outdated textbooks (methods dating from the end of the 19th century, such as the *Méthode rose* for the piano).

Moreover, it is commonly said that music education is late, relative to other social activities; conservatories are even worsely considered, even by teachers themselves:

> *Well, I'm thinking about Bercklee, but I was also watching to LIPA, the Liverpool Institute for Performing Arts, where even the Royal Academy [..]: they have a lot of stuff, they have, for example — that's where I say we're late — in their website, there are links to go to, for example, a performance study cell on stage, how to use performance on stage for this, for that.. That is to say, they use the tool as one would go to a library to find an encyclopedia [..].*
> (Interview: Pierre, conservatory director)

Promises of transformation

On the opposite, digital technology in teaching is supposed to transform pedagogy, and each new (or newly introduced) tool is given a pedagogical power: more motivation among pupils, especially through the "playful" aspect of the tools.

This point is well known (see, for example, CUBAN 1988), and so as not to quote the promotional speeches of hardware manufacturers and software publishers, let's hear a conservatory director, talking about special schedule classes (CHAM):

> *Here we are: in terms of the use of new technologies, CHAM is our flagship, because.. anyway, the title of the CHAM is "collective practices and new technologies". It's a rather an exceptional CHAM in France; I think it's the only one, and we don't have a curriculum strictly speaking, as in other conservatories. In any case, it's not in the philosophy of the place: here, [...] we're really in research and pedagogical innovation [...] We refuse to talk about "conservatory".. we are really there, in a playful search, and cultural openness for the youngest, and then even for adults [..]*   (Interview: Juliette, conservatory director)

For Juliette, "new technologies" refers to the place of computer assisted music in CHAM class; it is supposed to transform music learning in a playful activity, and moreover, conservatory in a new kind of teaching and learning place. This extract illustrate a frequent assimilation of technological innovation and pedagogical innovation, a point largely discussed in the literature (see for ex. BARON 1990).

Thus, in terms of discourse, the criticism of so-called conservatism and the promises of a great digital turn seem to call for a widespread use of technologies. However, as we will see, uses mainly remain at the stage of the experimentation.

3   Small scape uses, non standardized tools

Disparities in digital practices

While the disparity of uses of digital tools in education is emblematic, despite the development of policies of usage, the case of conservatory teaching needs a specific focus.

First, because the tools used in a learning perspective have not always been designed for this purpose, perhaps more in the case of music than in any other subject. At least, tools that are not perceived as educational by the authorities in charge, are considered as educational by teachers. In many situations, teachers and directors report refusals of purchases from the authorities who see conservatories as places to learn violin or piano, and not to "play" with digital tools. Arnaud, one of the directors interviewed report the case of a convention with a highly respected creation studio for a collective creation project. Each child had to play music with a joystick connected to a creation software (*Meta-mallette*[2]). But joystick did not appear to the authorities as a music learning tool.

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[2]   http://www.pucemuse.com/recherche-developpement/meta-mallette/.

No consensus appears, in fact, about what is educational. The divergences do not only concern teachers and authorities (joysticks, but same could be said of computers), but also teachers and directors:

> So we use the meta-instrument as a pedagogical object of sound manipulation and as an object of live music, and as an object of creation... MAO [Computer assisted music], but it remains circumcised [sic] to the class of MAO and to partnerships with certain classes of musical education who will come to work with this; that is, I was expecting it to be... that it goes through all the musical education. But for that, you need equipment. So, imagine, when in the budget, I asked for 18 joysticks.

(Arnaud, conservatory director)

But this is not the only explanation for the limited and uncoordinated nature of practices and tools, because most practices are above all experimentations.

Experimentations

More than differences between practices, the principle of experimentation prevails. The word is not to be understood as in experimental classes or schools, with support from the authorities, but as individual practices of teachers, closely linked to their own artistic career, as Romain states:

> It's true that I tend to look for the tools by myself, because I find that it can be interesting to isolate — in a teaching project — and at the same time, it's a research [Romain manipulates at the same time an application on his smartphone]; there, I have two parameters. The idea is to see what we can do. We haven't started yet, but with a tactile surface..
> Me: Which application?
> Romain: It's always the same: it's PureData, it's a bit of a do-it-yourself implementation [...].
> (Romain, teacher in charge of a musical computer workshop)

When recognized by the conservatory, experimentations are negotiated with the authorities, being the only way to obtain approval (even if it is only a silent approval):

> Baptiste: So, you've obtained permission from the conservatory, of course, but also from [local authorities]?
> Harold: [Laughs] In fact, we keep it in beta, we say it's a beta. As long as they say it's a beta, it's fine with everyone. We're experimenting with things.

In any case, specific tools and media for music mentioned in the interviews stay very local and are merely known outside the conservatory walls. In such conditions, if everything is disparate and local, are tools and media in practice not usable outside their first employment context? Are there any intrinsic characteristics that could explain why tools and media are poorly used in conservatories? Before try-

ing to answer this question, we need to clarify the nature of the tools used in music education.

Types of digital tools and media

To categorize tools and media used in conservatories, starting from teachers practices would be particularly difficult, given their disparity and the lack of visibility about published materials. Moreover, music educational tools do not have distribution channels as structured as the more general products. Instead, I will present a typology based on the principle of reproducibility, central in the theory of cultural industries (Huet et al. 1984), and for understanding the process of industrialization, because this criterion is the primary condition for generalization. Furthermore, such a typology could help to understand the conditions under which practices are homogenized or not, may be transferred, and also constitute prospects for the development of markets.

Applying the model built by Mœglin (2005) for tools and media in music education, four types of tools can be identified, according to their reproducibility (column 3) and the fact that the tool conveys content, or not (column 2).

	content	reproducibility	example (compulsory schooling)	example (conservatories)
Type 1	no	no	quill pen	children size instrument
Type 2	no	yes	computer	Karlax
Type 3	yes	yes, small-scale	self-media	self-published sheets, software patches
Type 4	yes	yes, large-scale	textbook	methods, tutorials

Tab. 1 *Tools and media in music education.* (Author)

Type 4 media include methods, which act as textbooks, while responding to different formats often linked to the score music model. Some of them are included in low-cost collections adapted for use in the classroom (e.g. Dover editions or other pocket score formats). This type is highly replicable, mainly by photocopying.

Type 3 media corresponds to scores produced by teachers, or course assignments and schedules on upcoming activities. Teachers like Romain (mentioned earlier) also create patches for free software, acting like free software developers.

Type 2 tools are illustrated by designers of prototypes such as the Karlax[3], a digital instrument equipped with motion sensors, which can only be reproduced by a small number of actors, early involved in the production process of such instruments.

Type 1 tools are instruments made for use by young pupils, the only difference between instruments for professionals ("concert instrument") and those dedicated to learning being their size.

All these types must be understood as Weberian idealtypes: a tool can move from one type to another, depending on the greater or lesser distance between the product and its creator. For Type 1, the craftsman controls the process of manufacturing the instrument, from the beginning to the end. The situation is different for the Karlax, where the prototype can circulate more widely and can be imitated. Self-media can circulate between teachers, and gradually lose the link with the author, by forgetting the author's credits. The author still appears in the published manual, but he has assigned his rights to another intermediary.

It can therefore be said that the more reproducible the medium, the more it is part of an industrialized process, the more the uses move away from the initial experimentation. However, the actors who contribute to the industrial process are few, and do so only if there is an opportunity to reach a massive audience, that is, beyond the mere horizon of musical education. This is the case, for example, of Type 2 tools such as computer-assisted music software: useful for music production and exploitable in amateur practice, they are much more widely disseminated.

4   Conditions of practices

Institutional context

The objectives of conservatory education should be distinguished from those of compulsory schooling. For the latter, the aim is to ensure for everyone the "transmission of knowledge" and to "share with students the values of the Republic" (Education Code, art. L111-1). For conservatories, it's mainly about training and accompanying professional or amateur musicians:

> *Educational and artistic missions:*
> *The [conservatories] have as their central mission the sensitization and training of future amateurs in artistic and cultural practices; some of them also provide pre-professional training. [...] They are places of resources for amateurs; they inform them, [..] they welcome them on their premises and encourage the development of exchanges and collaborations between amateur groups [..]. They are centers for the development of cultural life...*
> (Charter of Arts Education in Dance, Music and Theater, Ministry of Culture and Communication, 2001).

It should be noted that legal framework does not have the same status: while the tasks, means and functioning of school education are defined by law, the conservatories have their missions set out in a Charter signed by the Ministry of Culture, local authorities and professional federations.

Moreover, administrative organization is not the same in both. Beyond separate ministerial supervision (Education vs. Culture), the situation of the two systems differs, to sum up, by a greater diversity of the nature of the institutions, by careers and professional statutes less stable, by the weakness of prescribed curriculum, and by the scarcity of pedagogical control in the conservatories. It could be said that the conservatory system is far away from the bureaucratic idealtype (WEBER 2003). Conservatories are structures that have so much more autonomy, educational freedom and choice in the selection of media.

In such an institutional context, an easy interpretation of the lack of a generalization of experimentations could lead to the hypothesis that low bureaucracy minimizes the possibilities of dissemination of innovation. But this would be to yield to a diffusionist reasoning, widely criticized by the sociology of innovation (AKRICH et al. 2006), and to consider that innovation would always be top-down. It is not the case, and as many authors (e.g. DEPOVER 1996) have shown, the novelty coming from local initiatives is more likely to take root.

Grassroot innovation?

In a grassroot model of innovation, bottom-up innovation is not only the work of individuals who are more innovative than others; it is mainly based on the existence of collectives, or at least networks of colleagues who can collectively contribute to the job and expand it to other environments. QUENTIN

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[3] http://www.dafact.com/fonctionnalites.php?id_product=1.

(2012) shows the importance of collectives in the production of resources for teachers, and one could imagine that similar phenomena can be observed in music education.

But in the case of conservatories, very few communities seem likely to share experiences, tools and media, even if in a context of social movements against budget cuts, new meeting places have been established and where approaches of sharing and collaboration have been implemented. This is the case of Canopeea[4], an association who organize widely open meetings all over the country, applying creativity methods (brainstorming, for example) to encourage experience sharing. However, once the activist period is over, the collective seems to have lost its vitality and opportunities for exchange have become more limited.

5   Conclusion

The (modest) aim of this article was to shed light on the use of digital tools and media in music education. Starting from a simple observation, that is, the existence of general discourses on the promises of digital technology for education, quite similar to those that can be heard about general schooling (digital technology as a way of catching up with major social trends and transforming pedagogical practices in depth), I have examined the relevance of the theoretical model of "industrialization of education" to highlight the differences between these two educational sectors. This theoretical framework articulates three markers to capture the existence of industrializing logic: an ideological dimension, a rationalizing dimension, and a technological dimension. Two of these dimensions are obvious here: ideology and technology. But if we take a closer look, for example by presenting a typology of tools and media based on their industrial potential (reproducibility), and by taking an interest in the experimental nature of projects that appear innovative, we realize that the situation of education in conservatories is very different from that of general education. The institutional framework does not offer a standardized approach to practices, audiences do not represent a sufficient volume to go beyond the scale of niche markets, and the conditions under which teaching is carried out encourage individual rather than collective work. Consequently, the overall characteristics of the environment are more a matter of craftsmanship than of industrialization.

It is also necessary to distinguish the industrializing logic that we were trying to identify from the existence of phenomena of merchandization and privatization, with which they could be confused. If, indeed, we understand by merchandization the phenomena of competition between schools, and by privatization the emergence of new private entities competing with public ones (and not the privatization of the public sector itself), those two phenomena characterize the world of music education today. Thus, several online music schools[5] offer videoconference courses, or connect teachers and students, and explicitly present themselves as alternatives to conservatories. This, in addition to the phenomenon of technologization discussed in this text, leads us to believe that we are witnessing phenomena of industrialization in musical training, rather than of industrialization of musical training itself.

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How are the didactic manuals for Brazilian five-string guitar course written?

Textbooks and educational media in the teaching of stringed instruments

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Abstract

This report is part of a research developed in the Music Master's Program of the Federal University of Paraná – UFPR. The investigation analyzes printed and virtual textbooks for Brazilian five-string- guitars course (violas), mainly in musical notation, with the purpose of examining: how they are written; the form of placement; what information they carry; and which musical graphics are chosen for registration and which are excluded. The theoretical framework of this research is based on authors like Batista (2000), Bourdieu and Chartier (2001) and Forquin (1993) as well as researchers of the violas like Vilela (2011), Nogueira (2008; 2016) and Sardinha (2012). It was found that is more possible to understand textbooks when the scores are combined with tablatures and that the main distribution of these materials is made in a virtual way.

Keywords: Textbooks, Brazilian ten-string guitars, Violas

1   Introduction

The beginning of the Moor's presence on European continent dates back to 722 AD. They also brought the first instrument of strings with an arm where notes can be modified, denominated *Oud* – the Arabian lute. Given the enculturation between Moors, Christians and Sephardic Jews, a Latin Guitar was created around the thirteenth century. From the *Oud* and the Latin Guitar emerged the *vihuelas*, in Spain, and *violas de mão*, in Portugal. With the *violas de mão*, came the Portuguese *violas*, which, in the Brazilian colonial period, was an instrument of great use by the colonizers (Sardinha, 2001; Morais, 2006; Nogueira, 2008).

Despite the Portuguese origin, it is in Brazil that the Brazilian five-course guitars (henceforth called violas – its Brazilian and Portuguese name) manifest themselves in a more grandiose form (Ivan Vilela, 2005). There are several types of viola throughout Brazil.

Fig. 1 *Some Brazilian violas: Viola caipira, viola fandangueira, viola de catira, viola from Northern Minas Gerais, viola made by luthier Virgílio Lima and viola Dinâmica Del Vecchio.* (Corrêa, 2002, p. 10)

Between the sixteenth and seventeenth centuries, the first textbooks were made for violas, in Spanish and Portuguese (Taborda, 2002). Nogueira (2008) pointed out that they were written, mostly, in tablature. Since the French Revolution, with the creation of the *Conservatoire de Paris*, in 1794, the standardization of written music only in scores began (Gonçalves, 2009), which influenced textbooks for viola (like it is possible to see at **Fig 3**). It is only in this historical point that a stabilization of the graphic elements in the musical notation was raised (considering only the western music), excluding the use of tablatures (Bosseur, 2014).

The tablatures written for the violas present some divergences since the 16th century. In that period, there were many types of tablatures (e.g. French, Italian, Spanish and German tablatures). Nowadays, it is more likely to find Italian or Spanish notation. According to Nogueira (2008), tablatures are forms of writing in which the signs reveal heights according to their position in the arm of the instrument, represented by numbers. In the Spanish notation (Fig 2), the spatial conventions of height are the same as the conventional notation – sharp in the upper part. In the Italian tablature (**Fig 3**), the opposite happens.

From the 16th century until the end of the 18th century, violas were instruments intensively used in Brazilian urban environments. However, with the laws of the Church restricting their use to accompany manifestations of popular Catholicism, these instruments retreated into the countryside. Therefore, the knowledge about them began to be transmitted non-formally. It is only in the twentieth century that the viola, as well as its musicality, returns to the capitals (Vilela, 2011; Dias, 2012).

Although Brazilian violas, as well as the music that is produced using them, returned to the "major cities" at the beginning of the last century, it is only since the 80's that consistent advances were achieved regarding the transmission of the viola knowledge. With the movement of teaching viola comes the question of how to write – if it is better scores, tablatures or both (Dias, 2012).

Nogueira (2008) points out that every musical transcription implies in a loss, of some elements have no correspondent in other signs which is intended to be transcribed or the coding was not foreseen as far as they are considered contingent. For instance, one of the problems found in the act of writing for Brazilian violas is that, because it is a double-strings instrument, some string orders are arranged in octaves. Thus, when writing scores for these instruments, it is common to omit the higher octave of the pairs, leaving their presence implied. According to Corrêa (2002, p.80), it is possible to find that the disposition of the strings is written as it is shown below (**Fig. 5**):

Fig. 2 *Spanish Tablature from 1549.* (Nogueira, 2016, p. 125)

Fig. 3 *Italian Tablature from 1554.* (Nogueira, 2016, p. 125)

Fig. 4 *Paixão.* (Ribeiro 1789, p. 70)

Fig. 5 *Viola strings.* (Rɪʙᴇɪʀᴏ, 1789, p. 70), (Cᴏʀʀᴇᴀ, 2002, p. 80)

But for practical proposes the octaves are written such as shown at Fig 6:

Fig. 6 *Viola strings simplified.* (Cᴏʀʀᴇᴀ, 2002, p. 80)

As the book *A arte de Pontear Viola* (Cᴏʀʀᴇᴀ, 2002) became the main reference to discuss these instruments, it is common to find the form of writing proposed by its author in other publications.

Finally, it should be noted that currently there are other forms of distribution and commercialization of Brazilian violas textbooks, such as sites, where specific musical classes or materials can be bought and distributed online. It is interesting to note, however, that even these new materials are shown as sheet music scores and/or printed tablatures.

Therefore, the following study intends to: i) analyze how a printed didactic material of Brazilian violas uses the musical notation and visual signs and; ii) to examine how effectively the aforementioned methods achieve the goal of transmitting knowledge. For this purpose, we recognize that didactic manuals are physical and digital objects that support didactic texts produced in school culture, which express the tradition of cultural selection and didactic imperatives. Produced by people immersed in a sociocultural context, this material displays reading practices as well as forms of their appropriation and use as commercialization (Aʀᴀɴ, 2009; Bᴀᴛɪsᴛᴀ, 2000; Bᴏᴜʀᴅɪᴇᴜ & Cʜᴀʀᴛɪᴇʀ, 2001; Fᴏʀǫᴜɪɴ, 1993; Wɪʟʟɪᴀᴍs, 1961).

2   Methodology

In order to understand the writing and form of musical notation presented in textbook for Brazilian violas, for what type of viola is written as well as their material support, we first collected materials that represented different forms of notate. This selection forms a sample of the production for educational purposes for different Brazilian violas.

It was considered printed and digital textbooks, master's dissertations, transcriptions of scores, as well as videos-lessons found on DVD and on the YouTube site. The dissertations were included based on the focus on transmitting knowledge about violas specific to the Brazilian context (e.g. viola *fandangueira* and viola *machete*). The manuals have been organized in **Tab. 1**

	Title	Transcription's Author.	Year	Product
1	Troca de Pares: um estudo sobre escalas duetadas	Braz da Viola	2009	Book
2	Viola de Cocho: Método prático	Braz da Viola	2004	Book
3	A Arte de Pontear Viola	Roberto Corrêa	2002	Book
4	Ensaios para Viola Brasileira	Fernando Deghi	2003	Book
5	Viola nos sambas do recôncavo baiano	Cássio Nobre	2008	Thesis
6	Na trilha da viola branca	Cintia Ferrero	2007	Thesis
7	Juriti Mineira	Roberto Corrêa	S/D	Transcription
8	Nordestina	Adelmo Arcoverde	1997	Transcription
9	Pau-Brasil	Zé Guerrero	-	Transcription
10	Forrozal	Marcos Pereira	-	Transcription
11	Copaíba	Zé Helder	-	Transcription
12	Viola Quebrada	Ivan Vilela	-	Transcription
13	Saudade do Cinema Paradiso	Ivan Vilela	-	Transcription
14	A Arte de pontear Viola	Roberto Corrêa	2015	Video Lessons

Tab. 1 *Textbooks.* (Aᴜᴛʜᴏʀ)

The parameters for analysis were the presence of the score and the existence of fingering for the left hand (L.H.) and the right hand (R.H.); the presence of tablature considering the type of tablature – Italian or Spanish – and the existence of note value up the numbers – rhythmic tablature. It took into account what type of Brazilian violas the material is intended for; what tune and, at last; what material support they use.

These variables were chosen based on what was presented in the introduction – the historical issues to write for violas – and for the reason they are the main points of discussion when we analyze musical notation in textbooks designed focusing on violas as it can be seen in Nogueira (2008), Dias (2012) and Ruas Júnior (2014).

3   Results and Discussion

Tab. 2 presents all data chosen for analysis in all textbooks:

Material	Part.	Fingering in the score	Tab.	Rhythm in the score	Type of tablature	Type of viola	Tuning	Material Suport
1			X		Italian	Caipira	-	Printed
2			X		Italian	Cocho	Canotio Solto	Printed
3	X	R.H.	X		Spanish	Caipira	Cebolão D	Printed
4	X	R.H. and L.H.	X	X	Spanish	Brasileira	Cebolão D e Rio Abaixo	Printed
5	X		X		Spanish	Machete e Caipira	Natural do Machete, Rio abaixo e travessa	Printed and digital
6	X	R.H. and L.H.	X		Spanish	Fandangueira	Intaivada	Printed and digital
7			X	X	Spanish	-	-	Manuscript digitalized
8	X					Nordestina	Natural	Digital (score)
9	X	L.H	X		Spanish	Caipira	-	Digital (score)
10	X	R.H.				-	Cebolão	Digital (score)
11	X	R.H. and L.H.				-	-	Digital (score)
12	X	R.H. and L.H.				Brasileira	Cebolão D	Digital (score)
13	X	R.H. and L.H.				Caipira	Cebolão D	Digital (score)
14	X	R.H.	X		Spanish	De Arame	Cebolão D	Digital (DVD)

Tab. 2 *Manual Analyzes*. (Author)

Type of Brazilian Viola and Tuning

The first thing we would like to highlight is that in some materials no description was found related to what type of Brazilian violas (4, 7, 10, 11) was to perform the piece, as well as what the appropriate tuning was. It was considered that, when this happened, it was always referred to the *caipiras* violas in the *cebolão* tuning (Corrêa, 2002, p.35) in D major (D) or E major (E). This happened because viola *caipira* in *cebolão* tuning is the most prevalent in the viola literature.

Notation

There are many ways of noting significant elements so that the pieces can be interpreted to match the author's satisfaction. Materials 1 and 2, for example,

did not show rhythm notation in tablature and were not accompanied by the score. They are the only ones written in Italian notation. In these two cases, with the printed material comes a CD for the reader to accompany the reading – so the audiovisual device is essential.

The materials 3, 5, 6 and 9 used combined tablature and score. By using these two resources, they were able to divide the necessary signs of musical notation (fingering for right and left hands) between these two forms of writing for strummed string instruments.

Unlike the aforementioned material, material 4, which also features score and tablature, has a more confusing aesthetic. Deghi (2004) used a rhythmic tablature combined with the score. It is possible for

the viola player to execute the pieces only with the tablature (since it has indication and description of the tuning, typing, fingering and rhythmic notes) or only with the score (which has all the necessary descriptions). That is because the author addresses his sheet music to both beginners and experienced musical reader.

Fig. 7 *Rhythm Tablature*. (Deghi, 2004, p. 13)

Materials 7, 10, 11, 12 and 13 have only scores. The transcription of Nordestina is, from these scores, the one that presents less information; it is only possible to find information about absolute notes. Forrozal and Copaíba show lack of fingering but present all other important data for their execution.

The transcriptions by Vilela (S/D) try to account for a practice he did in an innovative way for viola *caipira*. This composer, currently, thinks the instrument as a tool for counterpoints. To do so, it signals the stems of the notes downwards when it is to be performed with the thumb, and upwards when it is to be performed with the other fingers of the right hand (12). However, to perform the counterpoint more precisely, the composer uses the strings of the pairs separately. Thus, Ivan Vilela Pinto uses the bowing signals (common to bowed string instruments) when he wants to indicate only a note of the pair.

In the **Fig. 4**, the compass 29 shows the arcades down, that signal to touch only the lower notes of the fourth order. In the compass 32, the upbows mean to touch only the higher notes of the same forth pair. The difficulty of this notation is found in the number of elements displayed and because the score does not reflect the real sound written. This notation works only with a bull. For the same pur-

pose, Nobre **(Fig. 5)** uses the combined score and tablature, which visually simplifies the understanding. The first and the fourth set of notes in **Fig. 5**, for example, are typed in the same fret of the third
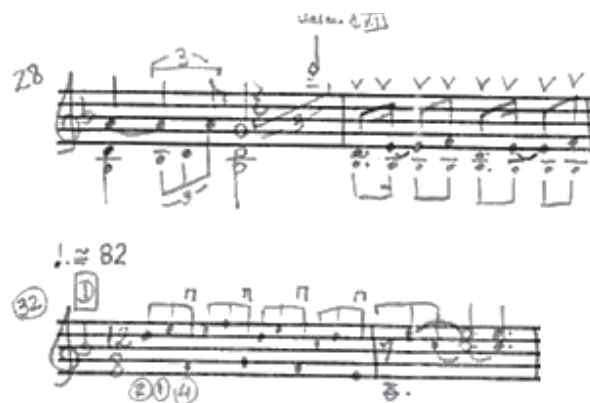

Fig. 8 (Vilela Pinto, 2008, p. 1)

Fig. 9 (Nobre, 2008, p. 104)

order of strings. In the first set, the two strings of the pair are executed, while in the fourth set only the higher string, assuming that it is touched with the thumb (since the higher string is arranged in the upper part). The only notable absence is the fingering of the right hand, which could be added to the score or the tablature.

Material

It is interesting to note that, besides most of these textbooks show a large number of transcriptions, the major part of them do not. We could hypothesize that it happens due to the fact that the Brazilian textbooks began to be produced in the period of the advent of the internet.

On current days, the internet is an important tool to the teaching and learning the Brazilian violas processes with several sites enabling virtual learning starting from, beyond notation, audiovisual references.

4   Conclusions

The study reported here showed divergences in the ways of writing for the violas nowadays and in the past. Besides, the scores as the standard are clearer and more efficient than the scores or tablatures alone. So, it emphasizes the importance of completing the tablatures with the scores, and that the scores accompanied by tablature are clearer.

Nogueira (2008) highlights two important historical facts: 1- the first notation for string instruments was the Ttablature, several forms of this writing fully counted on informing the performer what was necessary at the time; and 2 – the contradictions of writing, given that various forms of writing (e.g. Spanish, Italian, French and German tablature) between the sixteenth and nineteenth centuries for the instrument today called viola (but which was called *viola de mão*, *vihuela* or baroque guitar)

almost disappeared in the nineteenth century, both in Brazil and in European countries.

After the revival experienced by the Brazilian violas from the 60's (Dias, 2012), it was observed an increase of production of didactic materials and academic texts for these instruments. Although all musical notation is exclusive (Nogueira, 2008), it is important to consider a way to find a notation that covers all the important aspects when writing for the violas.

Finally, we point out that the sales of viola's textbooks are been done almost exclusively on the internet but, this fact aside, this material conserves the traditions of musical conservatories at the same time they are trying to find the best way to notate relevant techniques for the violas.

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How to cook without a (text)book

Didactic materials for art education in the Czech Republic

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Abstract

The article deals with didactic materials for art education in basic education. We examine their relations to the issue of visual literacy, to the current discourse, and to the professional community of art teachers. We ask what role the printed didactic materials play within these areas.

Our ongoing research proceeds from the fact that art education is a compulsory subject in all years of basic education and a subject with a high percentage of uncertified teachers. Textbooks and teaching texts provided with an approval clause of the Ministry of Education, Youth and Sports are in a significant disproportion with most other subjects and include publications approved fifteen or more years ago. We present selected research projects in this field in the Czech Republic. Finally, we suggest some specific criteria for creating and verifying new didactic materials for art education.

Keywords: art education, didactic material, textbook, visual culture, visual literacy, approval clause.

1   Introduction

"Rather than taste being a highly individual attribute, Bourdieu saw it as a by-product of education and access, generating a ´cultural capital´ that reinforced and enhanced the economic distinctions of class."

(Mirzoeff, 1999, 11)

The introductory quote aptly illustrates the wider contexts of the issue under discussion. Although the article primarily deals with printed didactic materials for art education, it comments on the unsatisfactory state of the subject, especially at the level of basic education. Continuous efforts to update the field of art education are made, for example, by the Czech Section of INSEA (International Society for Education through Art). Their inputs (especially conferences) influence the art-pedagogical discourse, through which they also indirectly influence the formulation of curriculum documents:

A major medium of communicating cultural perspectives and values are images. Art education is the subject where images play a central role. (...) In order to foster an education of self-determination and political responsibility the competences to 'read' images, to observe their aesthetic strategies and to reflect their intentions and meanings is crucial. Thus art education comes in sight as a major subject for an education that aims at preparing the individuals for a self-determined living in a globalized media culture.

(Buschkühle, 2016, p. 10–11)

However, the practice partly remains resistant to these objectives. We believe that optimally designed and regularly updated didactic materials (such as textbooks) would help stabilize this situation.

The article is based on dissertations of both authors (both research projects are ongoing); while the first one deals with didactic materials for art education, the other one examines the mechanisms of developing visual literacy in teaching art education. Both theses agree on the role of art education in contemporary society. Although the objectives of education are stated in the curriculum documents, the everyday practice is different, and the didactic materials used by teachers vary. Yet they should provide the community of teachers of art education with a common communication framework and the support for meeting the educational objectives. Our main research question therefore is: *What is the effective role of printed didactic materials during the educational process in art education at primary and lower secondary schools?*

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2   Theoretical Framework

First, it is essential to clarify key terms and concepts used in the article. In the Czech Republic, **curriculum documents** are created at two levels – the Framework Educational Programmes at the national level and the School Education Programmes at the school level. These documents work with the so-called key competencies[1] that students should attain during each stage of education.

The Framework Education Programme for Basic Education is divided into so-called educational areas. Art Education is (together with Music Education) part of the area called *Arts and Culture*. Educational content of the field is divided into three basic categories: *Developing the senses, Applying a subjective viewpoint and Verifying the communicative impact.*

The field of our interest is further limited to the compulsory **basic education** (children aged 6–15). Basic education is divided into two stages (1st to 5th grade and 6th to 9th grade) – during the first stage (primary education), students are taught and led by one teacher only, while during the second stage (lower secondary education), each subject is, ideally, taught by a single professional teacher. Art education is a compulsory subject in all grades. However, according to previous findings of the Czech School Inspectorate, art education is taught by up to 40% of uncertified teachers at lower secondary schools (Valeš, 1997, in Slavík 1998, 2005).

The key term is **didactic materials**. We understand them as *material didactic resources* defined in the broad terms (i.e. both as resources present in the classroom per se and as resources used by teachers during their preparation) but limited to *non-periodical print publications*.[2]

Some of them may be granted the **approval clause** of the Ministry of Education, Youth and Sports (MEYS). In art education, there is a significantly smaller number of textbooks and teaching texts provided with this clause compared to other subjects[3] – just ten of these publications have been granted the approval clause fifteen or more years ago and the validity has been extended ever since[4]. Despite their indispensable qualities, they unfortunately lack links to contemporary art and visual culture.

The procedure for granting the clause is initiated by the publisher. At least two positive reviews are required for granting the clause. They focus on the following:

> overall conformity with general and curriculum documents and the Framework Education Programme;

> professional accuracy of the content;

> adequacy for student's age and attained competencies;

> methodological and didactic rendition;

> comments, other professional opinions of the reviewer.

Many experts consider this system to be too benevolent and call for a clearer set of criteria (Průcha, 2006, p. 20; Klapko, 2006a, p. 49, 2006b, p. 57; Knecht, 2006, p. 85; Čecrvenková, 2010, p. 87).

The concepts of **visual culture** and **visual literacy** are closely related to the current needs of art education, yet they are not explicitly included in the curriculum documents, as they are "new" and differently interpreted.

Due to the emergence of modern technologies at the turn of the 20th century, the model of natural language[5] has been gradually replaced by the visual model. (Mirzoeff, 1999, p. 3). M. Heidegger (1977, pp. 70–71) described this visual essence of the modern period as "the rise of the world picture" (meaning *the world grasped as picture*, not a picture of the world). Nonetheless, the rapid development and acceleration quite soon lead to postmodernism, a wild and ever-growing visual jungle, which no longer fitted this concept (Mirzoeff, 1999, p. 3, 5, 7). "Visual culture directs our attention away from structured, formal viewing settings (...) to the centrality of visual experience in everyday life." (Mirzoeff, 1999, p. 7). Consequently, not only visual theory, but also the formation of visual perception must inevitably transform within basic education – ideally in the teaching of art education.

"The constituent parts of visual culture are, then, not defined by medium so much as by the interaction between viewer and viewed, which may be termed the visual event. (...) In short, seeing is not

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[1] Key competencies are defined at the national level and stand "above" individual school subjects. They include learning competencies, problem-solving competencies, communication competencies; social and personal competencies; civil competencies; working competencies. Each subject has so-called expected outcomes (e.g., "[pupils will] choose, combine and create tools for their own personal expression, and compare and evaluate its impacts with the impacts of existing and regularly applied tools of visual expression" at 1st to 5th grade and 6th to 9th grade. At the school level, expected outcomes are specified for a shorter period (e.g., for the 6th grade, "[pupils will] apply their personal perception of reality in order to create and interpret works of visual artistic expression") and they are accompanied by subject matter (e.g., "subjective expression of personal perception of reality by using various materials and techniques – mixed media"). Pupils develop their key competencies by gradually acquiring the expected outcomes.

[2] Periodic publications cannot receive the MEYS approval clause and their inclusion would also significantly expand the area under consideration.

[3] E.g., 231 pieces for Czech Language and Literature, 282 pieces for English, 155 pieces for Mathematics and its Applications, 16 publications for Music Education (data of 2016).

[4] Two five-part series: Obrazárna v hlavě [The Picture Gallery in the Head] and Průvodce výtvarným uměním [The Visual Arts Guide].

[any longer] believing but interpreting." (Mirzoeff, 1999, p. 13) In Mitchell's (1994, p. 16) words, seeing is reading. Within pedagogic discourse, the issue is further elaborated from the point of students' personality shaping and self-identification. In order to be perceived as a full member of society – a capable, active and knowledgeable individual –, a person (student) must have control of a basic package of literacies. Rabušicová (2002, p. 11) states that "the ability to participate in the world of information has gradually become a more important prerequisite for the economic and social development of nations than their natural resources wealth." The basic triad is no longer sufficient: "new personalities" should be equipped with *media literacy*, *reading literacy*, and, in the context of this article, with *visual literacy*. (Altmanová, 2010, p. 4; Rabušicová, 2002, p. 10).

"With the growing influence of semiotics, cultural anthropology and theories of culture in the field of art education, the term visual literacy appears in the Anglo-American theory of art education and design since the mid-1980s." (Fulková, 2002, p. 12). The issue of visual literacy concerns vision and all visual aspects shaping the current visual culture. In the pedagogical context, visual literacy aims to stimulate, shape and support the individual's abilities and skills related to viewing, interpreting, classifying and shaping ubiquitous visual elements in order to be able to fully participate in modern multimedia communication. Accordingly, the incorporation into art education (including didactic materials) would meet the requirements of being up-to-date, forming and cultivating aesthetic feeling and value judgements, and, last but not least, of forming students' self-identity.

3   Research of Didactic Materials for Art Education in the Czech Republic

The 2013 survey research (Géringová, Makovský, Minaříková) found out that most often, primary school teachers base their lesson preparations on two specific categories of printed didactic materials: methodical manuals published before 1989 (linked to the curriculum and put together by experts) and creative task workbooks published after 2000 (commercially published materials without professional supervision). Neither of these categories includes contemporary visual arts and culture overlaps. Of the approached teachers, 70% stated they would appreciate new didactic materials for art education. However, due to a small sample size (36 teachers), we consider the survey to be only a preliminary mapping of the issue.

Similarly, Zálešák, who asked teachers at primary schools (35 teachers) and gymnasiums[6] (25 teachers) whether they work with contemporary art in their lessons and what resources they use. The most frequent response was *exhibitions* (15), the publication *Průvodce výtvarným uměním I.–V.* [The Visual Arts Guide I.–V.] (10) or the academic journal *Ateliér* [Atelier] (9) (Zálešák, 2007, p. 240). This research sample obviously works with contemporary visual culture more often, which is probably due to the participation of gymnasium teachers – in this case, art education usually focuses on the history of art.

Based on a questionnaire survey among teachers and graduates of secondary professional schools and on a research in school library collections, Polanecký (2006) carried out an "inventory check" of available didactic materials on the history of art and culture. He observes the lack of systematic research on didactic texts in the Czech Republic, resulting in a problematic situation for the potential emergence of new textbooks.

Červenková's (2010) and Sikorová's (2010) monographs include very comprehensive research devoted to the use of textbooks at lower secondary schools. They confirmed the important role of textbooks in teaching English, history, mathematics, and civics. Unfortunately, art education was excluded already in the pilot phase, since textbooks were not used during the observed lessons. As the author herself states, "even the absence of textbooks in the classroom indicates their role in the educational process." (Červenková, 2010, p. 14). We find this research important especially as a methodical and theoretical support and as a work focusing not only on the student–textbook but also teacher-textbook relationship.

Brücknerová (2010) also emphasizes the need for the research on textbooks of art education; she refers to the fact that in art education, Czech teachers probably have the greatest freedom and almost complete absence of textbooks.

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[5] The natural language model includes the spoken word and its written form, in culture represented mainly by newspapers and novels.

[6] A type of school emphasizing academic learning; comparable to British grammar schools.

4   Methodology of Research on Didactic Materials for Art Education

The above-mentioned research projects show the predominance of quantitative methodology, but the discourse in the field of art education has been inclined towards qualitative methodology – it reflects the *practical turn in the social and human sciences* (see Slavík et al., 2014), requiring an intensive interconnection of theory and practice in the field. A similar trend is evident in textbook research in general – observational and interviewing methods are increasingly frequent (Sigurgeirsson, 1992 in Červenková, 2010, p. 13). We too find the effort to connect theory to practice of the field important. We use quantitative methods especially for the initial "mapping" and to gain insight into the distribution of the concerned issues. The *explanatory sequential mixed methods approach* (Creswell, 2014, p. 224) appears the most appropriate. Here, the quantitative phase (questionnaire survey) is used to get an idea of the range of didactic materials used and the most common criteria applied by their users. Based on the survey results, a qualitative phase (interview) is conducted to explain these criteria in more detail.

In connection with the main research question (*What is the effective role of printed didactic materials during the educational process in art education at primary and lower secondary schools?*), a series of subquestions gradually emerged, which might work as relevant criteria for production of future printed didactic materials:

> What criteria are placed upon didactic materials for the subject of art education at primary and lower secondary schools by
> a) curriculum framework,
> b) current discourse in the field,
> c) certified teachers,
> d) non-certified teachers? How do these criteria differ?

> How are contemporary visual arts and culture represented in textbooks of art education?

> How is the development of visual literacy involved in textbooks of art education?

5   Quality Criteria for Didactic Materials for Art Education

Legislative criteria for didactic materials are phrased broadly, professionally specified by their link to the Framework Educational Programme and expert reviewers. Many authors, however, consider this system to be too benevolent. Therefore, we present questions specifying the relation of didactic materials to the examined issue, which could be included in a potentially revised review report:

I.   How does the didactic material encourage dialogue between teachers and students over their work?

II. How does the didactic material encourage dialogue between teachers and students over classical pieces of visual arts (or arts of other types)?

III. How does the didactic material encourage dialogue between teachers and students over contemporary pieces of visual arts (or arts of other types)?

IV. How does the didactic material refer to contemporary visual culture (e.g., in advertising, applied arts, etc.)?

V.   How does the didactic material encourage teachers to instigate students to interpret visual pieces of art or their own work?

VI. How does the didactic material work with professional terminology?

VII. How does the didactic material support the creation of interdisciplinary overlaps?

6   Selected Examples of Didactic Materials for Art Education

We have recently noticed increased production of quality domestic publications of visual artists, art historians, curators, or museum and gallery educators, who do not apply for the MEYS approval clause, yet their results meet most of the criteria. Moreover, they aptly refer to contemporary visual arts and culture. Three examples are given below.

Ko-text: tvar, zvuk a gesto, tvůrce, učitel a žák
[Co-text: Shape, Sound and Gesture, Author, Teacher and Student] (Dytrtová & Raudenský, 2015) is the result of the collaboration between an art education theorist and a visual artist. Teachers and pupils contributed to the publication with experimental learning tasks. The authors readily covered the current developments in the field (e.g., the method of conceptual analysis, see Slavík, Dytrtová & Fulková,

Fig. 1 *Excerpt from Ko-text [Co-text].* (DYTRTOVÁ & RAUDENSKÝ, 2015)

2010). Resembling a game, the publication requires the initiative of teacher, for whom it is primarily intended.

Nápadník do hodin výtvarné výchovy

[The Book of Ideas for Art Education] (JAŠURKOVÁ, 2015) focuses on the "gap" in the practice of art education (i.e. modern and postmodern art) and declares a clear link to the Framework Educational Programme. The publication is intended for teachers and instructors.

Proč obrazy nepotřebují názvy

[Why Paintings Don't Need Names] (HORÁK & FRANTA, 2014) is written for non-professional readers (including children) and deals with the most important periods of the history of art in a playful and comprehensible way. The book "does not provide answers and solutions, but it encourages curious students to ask questions, which can intensify their aesthetic experience" (MACHÁČEK, 2017). It is very popular with teachers of art.

7 Conclusion

The article assessed the current situation in art education in Czech basic education through the issue of didactic materials. The selection of these materials lies entirely within the teachers' authority, many of whom, however, are non-certified. There are very few textbooks for art education with a valid approval clause of the Ministry of Education, Youth and Sports. Moreover, they do not reflect contemporary visual arts and culture. Consequently, teachers resort to a wide range of officially unapproved texts of different quality and methodology. We introduced three apt examples.

Previous research projects show the importance of the role of textbooks both in lessons and in their planning or preparation. At the same time, experts call for revision or specifications of the conditions for granting the MEYS approval clause. We think that the issues of visual literacy and visual culture should be better integrated. The development of visual literacy significantly contributes to appropriate personality development, forming full members of contemporary society.

After systematic research in the two areas outlined in the introduction, we formulated and introduced a series of hypothetical questions, which we also examine in our dissertation research projects. Next, an extensive questionnaire survey among teachers of art education and semistructured interviews are planned in order to analyse the role of didactic materials in art education (MAKOVSKÝ).

At the same time, we will look into the practice – through lesson observations, analysis of framework curriculum timetables, questionnaires, and group interviews with students in order to assess their ability to interpret historical and contemporary images of visual culture (Voštová).

We believe that this approach will provide an adequate insight into the examined issue and will improve the initial situation for the sake of potential new didactic materials.

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Creative monitoring and resources coproduction as key levers of differentiation for design students' education

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Abstract

The goal of this research is to evaluate the ability of a blended creative monitoring system to support a renewed and singular creative cultural knowledge base for design students in which they coproduce resources for themselves and their peers.

For design students to become future designers, understanding the creative ecosystem requires an important and constantly renewed creative cultural knowledge base. This endeavor is daunting because designers produce a lot of new design projects every year. Yet, to create new artefacts, students need to know what has already been created. Creative monitoring associated to coproduction of resources could be a way to renew the student's cultural knowledge base and at the same time to feed their personal path. Indeed, this approach allows pooling resources but raises the question of defining an editorial slant for coproduced resources without giving up singularity of each contributor's choices.

Keywords: Creative monitoring, Coproduction, Differentiation, Cultural knowledge base

1   Context and problem

The goal of this research is to evaluate the ability of a blended creative monitoring system to support a renewed and singular creative cultural knowledge base for design students in which they coproduce resources for themselves and their peers.

For the design students to become future designers, understanding the creative ecosystem requires an important and constantly renewed creative cultural knowledge base. This endeavor is daunting, design is a growing and atomized field (JULIER, 2014, 2017) in which a lot of new design projects are created every year. Yet to create new artefacts, students need to know what has already been created.

The requirement of the ever-renewed cultural base is clearly stated in the French post-graduate curriculum. Indeed, the curriculum insists on the constant evolution of the information universe and on the contemporaneity of design themes to be addressed.

It also recommends the promotion of "curiosity and reflection in a state of watchfulness and innovation, to listen to international design news and evolutions." The understanding of mutations in different areas of design and the consolidation of an active renewable cultural knowledge requires a permanent creative monitoring (DESIGN DEGREE CURRICULUM, 2012).

Beyond the cultural base, the curriculum addresses the question of singularity. Every student should produce his own creations, answering original problems. Teachers should help students to identify their personal path connected to their own view. "Personal" is the fourth most used term in the curriculum with 36 records, behind "Research" (173), "Project" (143) and "Culture" (168).

Yet, there are no professional textbook for design teachers and students to respond to these requirements. Anyhow, is a textbook sufficient for this need for permanent culture renewal?

The digital environment and the economics of contribution offers opportunities to rely on shared productions and exchange. Relationships between actors become interconnected to support a common production (STIEGLER et al., 2008).

We study a blended learning system that fits in this new paradigm. The system sets to practice creative monitoring in which student's coproduce resources for themselves and for their peers. The consultation and contribution of these resources become an enabler to acquire an evolving and singular cultural knowledge base in the fast-growing context of design.

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2   Conceptual framework

To analyze this blended learning system, we articulate creative monitoring, co-production and differentiation conceptual frameworks. We explore creative monitoring framework to understand the acquisition process and the nature of information to be collected. The coproduction framework helps assess the opportunities provided by a shared production. Differentiation enables us to question teaching requirements in order to lead every student and provide singular inputs.

Creative monitoring

Creative monitoring is an environmental scanning process to gather key inputs that enables creativity (Goria, 2017). It's an activity geared toward understanding the environmental ecosystem in order to identify design opportunities and "improve or at least maintain the habitability of the world" (Findeli, 2010, p. 292).

We characterize creative monitoring by its process of information acquisition and exploitation.

Monitoring process

We are using the general definition of the environmental scanning process (Balmisse & Meingan, 2008) tailored to the creative context of design. It includes five stages:

1. the first stage is a targeting themes stage, in which the seeker locates the relevant axes, thematic or keywords that need to be monitored.
2. The second stage is collecting materials, recording and storing.
3. The third stage is an analysis step. It can be reports, synthesis, or classification system.
4. The fourth and fifth stages are dedicated to synthesis and making available information gathered. during which the information leads to the formulation of hypothesis or strategic scenariis.

In the remaining of the paper, we will summarize those steps in two different activities: consultation (stage one to three) and contribution (all the stages).

Creative monitoring and Information acquisition

Information is the purpose and the goal of the monitoring process dedicated to creative purpose. It's not about gathering information exponentially, but rather to identify information that reveals future trends, weak signals (Ansoff, 1984, Hiltunen, 2006), fresh information, that is, recent information (Dou, 2004; Deiss, 2015), gray information (AFNOR 1998; Schöpfel 2015), difficult to find but could help to design the future. (AFNOR, 1998).

Information may be collected in the course of "undirected monitoring" for instance through serendipity or during "active monitoring", that is a systematic and conscious monitoring within a defined perimeter (Mc Kenzie, 2003). Monitoring can be "outsourced", distributed and led by a large group of people within the organization or externalize outside the organization (Salvetat, 2008).

Analyzing a creative monitoring system must take these elements into account in order to identify the user's ability to find, select or produce information.

Coproduction

Coproduction of resources[1] involves the cooperation of at least two stakeholders in a production. It may be initiated by teachers or students. It is intended to improve the quality of what is produced, "to succeed together in what we couldn't achieve alone and promote innovation." (Ricciardi-Rigauld, Henri, 2010, p1). In the cooperative co-production, each participant acts in complementarity with the others.

Differentiation

Differentiation implies the idea of adjusting one's teaching to "help each student achieve a learning goal" (Prud'homme et al., 2005), focusing on student needs (Tomlinson & McTighe, 2010).

The quest for differentiation leads teachers to propose teaching situations in which each student can explore his or her own perimeter within a group activity (Przesmycki, 1991, 2008). This requires a safe and challenging teaching environment yet adapted to learning objectives (Subban, 2006).

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[1] We define resources as grains defined by Loffreda and Bruillard in 2016, that are, elementary components that cannot be reduce.

3 Data context: creative monitoring system

In the creative monitoring system, students produce resources that are design articles, edited online on a private pedagogical platform.

They can consult any resource in the platform at any time, search for articles with keywords or with design categories to generate narrow results.

The creative monitoring system includes three stages (**Fig. 1**):

design projects, write articles coproducing content. At the end, they present their work to the whole community.

3. Third (**Fig. 3**), the activity includes an on-line training, where students consult and contribute to the creative monitoring platform, producing a collective memory in the long run. At this stage, students can contribute independently

Fig. 1 *Creative Monitoring global blended system.* (Roumy Akue, 2017)
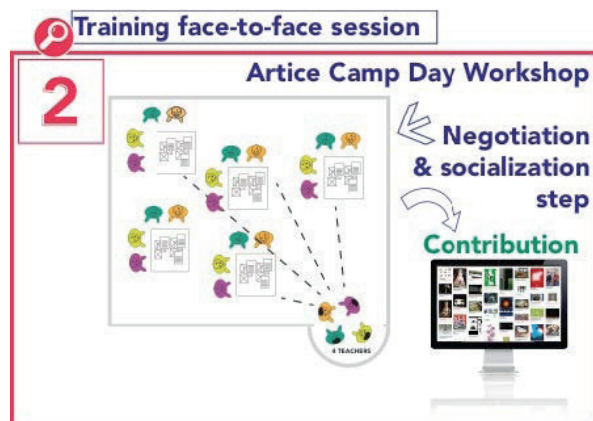
Fig. 2 *Training face-to-face session* (Roumy Akue, 2017)
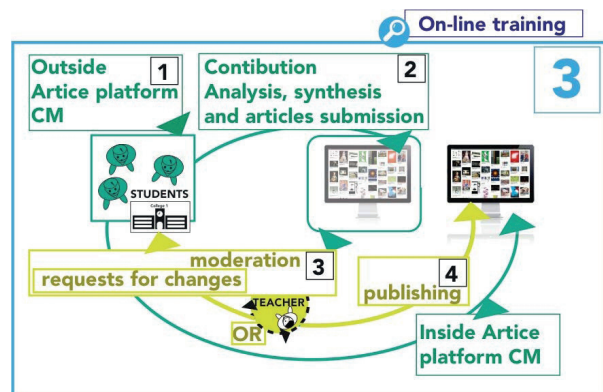
Fig. 3 *Creative Monitoring system on-line-training* ((Roumy Akue, 2017)

1. First, a workshop while the trainer teacher explains how to use the platform.
2. Second, (**Fig. 2**), a face to face session. All students and teachers work together to classify

and submit their article to a moderator-teacher. Contents are shared. Students can contribute in their own work perimeter.

4 Methods and sampling

The experiment took place in France and integrates 5 design schools for one academic year, from September 2016 to July 2017.

The whole community was composed of 5 schools distributed in 11 subgroups cooperating and sharing resources (Ricciardi-Riguauld, Henri, 2010).

We used a qualitative and quantitative approach and a triangulation of the data to understand the processes of cooperative contribution and consultation, behavior and motivation.

Qualitative analysis is based on 1 students' focus group, 1 teacher's focus group (field notebook)

and 5 semi-directive interviews with 5 design teachers who were involved in the project. We also participated in all stages of the project since its early beginning. In the semi-directive interviews, we gathered information on the consultation and contribution motivation. We particularly studied the motives behind design fields selection and the contributed subjects regarding to scholar requirements.

Quantitative analysis is based on the platform usage data.

We analyzed activity traces such as the frequency of consultation and contribution, the balance between the contributions of the different groups, the freshness of referenced design projects, the consultation frequency of articles written by other contributors, that is not written by the student himself.

By crossing our qualitative and quantitative data we investigated the efficiency of the coproduction based creative monitoring process for the acquisition of an evolving and singular culture base.

5 Results

A broad cultural base supported by the coproduction

Since 2014 (the opening of the platform) there has been 292 users and 590 articles published (2014–2017).

In the sole studied academic year (September 2016 to June 2017), 145 students used the platform, 203 articles were published, and 3870 articles were viewed. A single student would not have been able to produce those contents alone.

The monitoring and contribution process was outsourced, protected and distributed in the whole community. Furthermore, students consulted 89% of the articles they didn't write, the platform opens the access to a broad range of articles unwritten by those who consult them. We can say the system achieves objectives that a single student couldn't (Ricciardi-Rigauld, Henri, 2010).

A differentiated cultural base supported by coproduction: students goals

Now, if we pinpoint the learning goals mentioned by students, they used the platform to reinforce their comments or nourish their own work. Each student adapted his consultation and contribution to his singular need and his work perimeter (Przesmycki, 1991, 2008). They used the platform to complement their essays in an active monitoring logic in line with their schoolwork, or to find unknown projects confident of the rich and secure information context. We can consider this information as gray because they would be difficult to find otherwise.

"Artice (the platform) allows me to have project references that reinforce my topics" **(TQ)**

"Artice (the platform) is the first source I visit to find a project. It brings together the name, the context, the date, the visual representation, the article, a lot of information in the same place. For me, it's a designer bible, the first place I visit." **(IS)**

"The advantage with this platform is that you can find reference that you will find nowhere else." **(NCE)**

Students contributions match with their own singular research

"Most of the references we edit are linked to our research." **(TQ)**

The use of the platform shows that students consult articles written by their peers in line with their needs and contribute according to their paths. But we must underline that contribution impact others student's consultation. It implies that we have to pay attention to the balance of contributions.

A differentiated cultural base supported by coproduction: imbalance

Contributions spanned across 3 design fields (image, object and space) and 5 themes opening exploration of fields different than student's own specialties and specific interests.

2 groups were the most active contributors, creating an imbalance in terms of the fields studied in the articles. The groups contributed up to 40% and 41% respectively. As a consequence, 59% of articles are product design projects, 23%, images design projects and 17% space design projects.

This imbalance of contributions highlights a risk, the behaviors of students are impacted by their experience on the platform.

Adjustment of student's behaviors

We identify 3 kinds of student's behaviors:
> Sharing, students choose their research subjects and projects, with regards to what they would like to make known to others.

"the table that I find super beautiful, I would dream to have, I liked to share it, that's why I chose this and not something else" (JS).

> Militancy, contribution is driven by the wish to rebalance the common memory in line with their design view.

"Me, it's more projects that are not there at all [...], I think it's important that the architectural arts are represented, the arts, the design, there is not enough for my taste, that's it. "

(LQ)

"It pushes me to put references that are less known, which are in my culture and that we do not find often enough."

(KT)

"It seemed to me that I had to put projects a little more concrete, just product design more industrial."

(KT)

> Self-censorship: students interpret the publishing recitals and decide to comply with what they understand from the existing contributions.

"There are a lot of product design projects, so this encourage you to post a product design project."

(NCE)

"I did not feel like publishing a twenty years old project, because I thought the platform was not oriented."

(ME)

We notice that students gradually adjusted the standards of their productions through self-moderation attitudes influenced by the existing articles.

There is a dual adjustment dynamic:

> The integration of a broad and evolving common cultural base during consultations.
> The affirmation of an area of interest influenced by their peers' research problems, their wish to spread their design views and influence their peers design culture. And sometimes, self-censorship to comply with other contributions.

6   Conclusion and discussion

The goal of this research was to measure the ability of a blended monitoring system to support differentiation through the coproduction of resources aiming to renew a singular creative cultural knowledge base.

In the creative monitoring system, students produced resources that are design articles, edited online on a private pedagogical platform.

By doing this, the students extended their design culture and affirmed their own work area. Yet, we also noticed the emergence of "parasitic" behaviors such as self-censorship and militancy that could imbalance the whole monitoring and contribution process. Students' behaviors were influenced by others' contributions. Therefore, some design fields are more represented, and some students try to promote their design vision. This entails a risk of amplification of different kinds of imbalance, field imbalance, design approaches imbalance.

The platform faces the issue of balancing contributions without denying the singularity of each contributor's choices.

The principal limitation of this research is its duration. It could be extended to understand better how both teachers and students personal design views influence the knowledge base and how the imbalance between design fields distort the production of resources and affect self-censored users.

As a research perspective, we will investigate the critical question of the editorial slant homeostasis. Particularly, we will pay attention to two adjustments levels:

> The global organizational level, by balancing the presence of different groups of contributors.
> The individual level, by working on the awareness of individual contributors (from which position am I contributing?).

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