

Interdisciplinary Research Approaches to Multilingual Education

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Developing pedagogically meaningful learning objects for foreign language education

Bessie Mitsikopoulou

This chapter describes a project that was developed in the context of Digital School, a strategic project of the Greek Ministry of Education, and focuses on the digital materials for the teaching of English as a foreign language. First, it analyzes the notion of learning objects, as a specific type of digital materials, and its different conceptions in the field, and then moves to present some of the critique that the term has received. Next it discusses how the concerns associated with the notion of learning objects were handled by the English group that developed learning objects to be placed in Photodentro, the Greek National Learning Object Repository for primary and secondary education, in the context of the Digital School project (2011–15). Four different types of digital materials are presented and their pedagogical value is discussed, while a view of learning objects as contextualized and meaningful forms of digital materials is suggested.

Keywords: digital materials, English language teaching, learning objects, learning object repositories, Photodentro, Digital School

Introduction

The use of technology has a long history in foreign language education and a number of different terms were used to introduce different types of materials that were associated with the technology that supported them. The notion of learning objects is a relatively new addition and it refers to short units of learning that are stored in online repositories known as Learning Object Repositories (LORs). The term learning object comes from computer science and has therefore been influenced by how knowledge is organized and distributed in this field. This is one of the reasons why it has become the subject of heated debate when its use extended to other educational contexts. Learning objects became popular with the advent of the digital repositories (online digital libraries with a mechanism for storing, maintaining, managing, and retrieving of digital content) whose development flourished in the first decade of the 21st century. Learning Object Repositories contain searchable learning objects that have been stored with metadata so that they can be used for educational purposes. In order to support their national curricula with digital materials, several European countries (such as Austria, Bulgaria, Croatia, Ireland, Switzerland, UK), especially those with centralized educational systems, developed national LORs which were supported by their Ministries of Education and were funded by national and EU funds.

This chapter is concerned with the learning objects that were developed for the teaching of the English language in the context of the Digital School project and were placed in Photodentro LOR, the Greek National Learning Object Repository for primary and secondary education. Digital School was a large-scale project of the Greek Ministry of Education which was included in the National Strategic Reference Framework (NSRF 2010–15), funded by national and EU funds and implemented by the Computer Technology Institute Diofantos. The two broad aims of the Digital School were the promotion of digital technologies in education and the creation of a digital culture in primary and secondary education in Greece. To achieve these two broad aims the project funded the development of an open digital educational platform (<http://dschool.edu.gr/>) as an entry point through which users may access digital content produced by various projects of the Greek Ministry of Education, digital enrichment for textbooks of all subjects used in Greek state schools, a series of digital repositories, such as Photodentro LOR (<http://photodentro.edu.gr/lor/>), interactive textbooks (<http://ebooks.edu.gr/new/>), and the digital educational platform *e-me* which offers a safe electronic space for teachers and students to collaborate online.

Implementing the national policy for open educational resources, Photodentro LOR (<http://photodentro.edu.gr/lor/>) addresses all subjects covered in Greek schools and hosts reusable learning objects that are small, self-contained, reusable units of learning that have a clear educational purpose, follow the aims of the Greek national curricula, and are available online and

open to the public for educational use (Megalou & Kaklamanis, 2014). This chapter is based on the premise that similarly to other types of digital educational materials, learning objects are not neutral literacy practice artifacts but are always involved in a complex nexus of educational ideologies, power relations, and underlying pedagogies that signify particular ways of organizing knowledge and particular constructions of reality (Mitsikopoulou, 2015b). After a critical reading of various definitions of the learning objects in related literature, the chapter turns to present how the term was conceptualized by the English group of the Digital School project in an attempt to develop pedagogically informed learning objects and to overcome some of the problems traditionally associated with them.

A critical reading of the notion of learning objects

The initial idea behind learning objects was to break down curriculum content into small, instructional components (each with a learning objective) that would be tagged with metadata and placed in LORs so that they could later be reused to form larger units, such as lessons and courses, in order to serve other learning purposes. The Lego metaphor has often been employed in this rhetoric, according to which digital content, in the form of learning objects, is seen as building blocks which are combined and then re-combined to fit the purposes of different lessons or courses and to serve the requirements of individualized instruction. This, however, implies a rather simplistic view of the role of technology (Littlejohn, 2003) and a transmission model in which learning merely involves the acquisition of information (Wiley, 2000). In addition, Horsley (2001) argues, the re-purposing of learning objects to meet the needs of individualized instruction is a myth, because in most cases once web designers have decided on the topics, tasks, illustrations, demonstrations, and information, the content of a course becomes rather fixed.

Friesen (2004) identifies three further objections to this view of learning objects. The first relates to the name of the term itself that seems to bring together two incongruous and incommensurable notions: one the one hand, ‘learning,’ a rather vague, general, and non-technical term, and on the other hand, ‘object,’ a technical term deriving from the object-oriented approach in software engineering with specialized principles that cannot be understood by non-experts. It seems therefore that this inherent confusion of the term, which also stresses its technical nature, has impeded its potential for innovation and has generated resistance on the part of educators and teachers. Drawing on Rogers (1969), Friesen argues that the innovation of the learning objects was not presented in simple and meaningful terms for teaching practice nor did it show compatibility with or any relative advantage over existing methods and techniques. He therefore suggests a reconsideration of the notion which takes into account issues of innovation adoption and the ambiguities involved in education including the deceptively simple term ‘learning.’

A second point of critique refers to learning objects proponents' over-emphasis on standards and claims for pedagogical neutrality. Friesen (2004) argues that while standards aim at ensuring interoperability, portability, and reusability of content so that the expensive development of digital content becomes cost effective, at the same time they claim to promote a pedagogical neutral model. We know, however, that pedagogy cannot be understood as neutral in its relation to technology since approaches or contexts of pedagogy (such as critical pedagogy, special needs education, performance support, etc.) present various predispositions and factors that would inevitably shape its relationship to technology. For instance, the notions of neutrality, universalization, normalization, and re-organization of learning objects align, according to Horsley (2001), with competence and skills-based approaches, echoing Freire's (1986) banking concept of education, rather than with critical accounts of learning. Consequently, specifications and applications which claim to be pedagogically neutral have implicit in them particular ways of learning which are far from neutral. A related point of critique refers to decontextualized learning. Learning objects have been accused of promoting a fragmented approach (Parrish, 2004) which reduces learning to the exchange of learning objects and ignores the social aspect of learning, the collective organization of teaching, and the heterogeneity of educational contexts (Bruillard, 2007). The argument goes that the ideological underpinnings of decontextualized learning call for a specific type of educational pragmatism which aims to equip learners with technical skills, not with culturally rich knowledge. It seems therefore that in order to understand the potential of learning objects, design experts and all those involved in their development should pay attention to educational practices and to the complexity and heterogeneity of educational contexts and activities.

Friesen's (2004) third point of critique refers to learning objects and their standardization as "bearing the imprint of the ideology and culture of the American military" and as adopting a 'military worldview' which suggests systems thinking, uniformity, and technical standards and specifications as solutions to pedagogical problems. However, he argues that the goals of public education go beyond standardization processes and are radically different from those of the military. In similar lines, Jonassen and Churchill (2004), among others, argue that placing emphasis on technical standards show basic misunderstandings of contemporary conceptions of meaningful learning. The underlying implication here is that the learning objects may bring with them a culture and a set of connotations that may not be helpful in education.

On the other hand, we have seen that recently new types of learning objects have been developed which move away from the traditional approach to computer-based learning and which support different kinds of online activities and interaction patterns used in constructivist environments (Churchill, 2006). These learning objects do not require learners to merely acquire information, but invite them to interact with a task where knowledge is created and applied.

In this new perspective, the role of the learning objects is critical since they may act as triggers for initiating dialogue in the classroom. Churchill and Hedberg (2009:452) suggest that for learning objects to be effective, they must replace earlier forms of digital representation and contribute to a disruptive pedagogy in which they “utilize representation capabilities of contemporary technologies and merge these into a set of educationally useful displays of data, concepts, and ideas.” It is in fact this recent conceptualization of learning objects which was embraced by the English group of the Digital School project and which will be analyzed below.

Methodology: developing learning objects for English language learning

The English group of the Digital School project was formed in February 2011 and worked systematically for four years creating more than 900 learning objects for primary and lower secondary students who are learning English as a foreign language in Greece. It consisted of 14 members, including teachers of English with extensive experience in materials design, e-learning experts, computer scientists, and myself, as the coordinator. In the early stages of the project the aim of the English group – as well as the aim of the groups of the other school subjects – was to develop digital enrichment resources that would enrich the curriculum and the textbooks used in Greek schools. Our group started by exploring the notion of ‘enrichment’ in educational contexts and in foreign language education in particular, defined the term taking into account the specific project aims and adopted a ‘principled approach to enrichment.’ According to this approach which is extensively described in Mitsikopoulou (2014a, 2015a), digital enrichment should be systematic, targeted, and running throughout a textbook (thus, it should not be incidental); it should be supportive not subversive of the textbook’s teaching philosophy; and it should be based on applications developed by group members and not on external links that may be inactive in the future. We were also aware from the beginning that the way we define and proceed with enrichment constitutes an ideological positioning that will have significant implications concerning *what* kind of enrichment we will develop, for *whom*, *why*, *when*, and in *which* parts of the curriculum (Feng, 2005). Overall, our aim was to use digital enrichment materials as a means to offer language learners more opportunities for personal and social development, greater fulfillment, and intellectual satisfaction (e.g. through inquiry-based, problem-solving activities) than the basic curriculum. We also took into account that in the field of English Language Teaching (ELT), enrichment was often conceived in terms of materials adaptation (Richards, 1999, 2001) taking various forms such as *addition* of materials (addressing specific needs), *extension* of materials (providing additional practice for a specific aspect of a textbook or opportunities for more personalized practice), *modification* of materials

(offering an alternative focus that would address the needs of a particular group of students), or *localization* of materials (making them relevant to a specific target group).

The broader project, however, soon proceeded to the development of an open digital repository and, as a result, the enrichment approach to the development of digital materials was soon replaced by a learning object approach. The turn to Photodentro, the National Learning Object Repository for Greek primary and secondary education, created additional possibilities as well as constraints and gave our work a different direction. Learning objects should be characterized by clear pedagogical purposes and content integrity but at the same time they should stand alone so that they can be reused in other learning contexts as well (a condition not necessary to be fulfilled in the enrichment approach).

Overall, the learning objects should also make use of multimedia technologies offering students a range of learning modes and experiences, such as combination of audio, video, animation, graphics together with text; multiple starting points and pathways; provision of feedback (whenever possible); use of scaffolding techniques to enhance learning. Most importantly, we decided to design learning objects that offer rich and integrated learning experiences, are learner-focused addressing the needs of diverse student groups (e.g. in terms of their language proficiency level, their age, etc.) and enhancing their motivation to learn. Instead of transferring content through teachers' activities, we aimed at developing a range of digital materials that would stimulate thinking, discussing, and sharing of ideas and would be more appropriate in a more personalized approach to learning in collaborative environments. For instance, in designing assessment of competences and performance, we designed self-assessment tests and review edugames so that learners become more responsible of their own learning. Acknowledging that it would be impossible for all learning objects to address all diverse groups at the same time, particular attention was paid to have different versions of the same learning objects or alternative forms to account for different learning styles, as well. To this purpose, the English group developed a variety of learning objects that would serve different pedagogical purposes and would cover different aspects of the English curriculum for primary and lower secondary education and for the following language competence levels: A1, A2, B1, B2, according to the Common European Framework of Reference for Languages (known as the CEFR).

In learning object literature, various taxonomies of learning objects have been proposed (see, for instance, Koper, 2003) some of them considering learning objects as parts of broader learning tasks (Churchill & Hedberg, 2009) and learning designs (Oliver et al., 2007). Our taxonomy draws on materials development theory and particularly on Tomlinson's (2003) categorization of language learning materials and classifies the 900 learning objects we developed for English language learning over a period of three

years in four main categories: *informative* (whose aim is to inform learners), *instructional* (whose aim is to guide learners in practising the language), *experiential* (whose aim is to provide exposure to language use and to facilitate personal engagement), and *exploratory* (whose aim is to make discoveries about language) learning objects (Table 19.1). This was not an a priori classification but one that was formed as the project progressed. While a detailed presentation of each one of the different types of learning objects is not the aim of this study (for this see [Mitsikopoulou, 2014b](#)), the next section presents a selective discussion of the design process that was followed in order to address the ways we handled the shortcomings of the traditional learning objects and opted for the preparation of pedagogically meaningful materials that are relevant to both English learners and teachers.

Table 19.1 Taxonomy of the learning objects for English language learning

[Note to author: Tables are better viewed when changing your 'MS Word settings' to 'Web view'].

	<i>INFORMATIVE</i>	<i>INSTRUCTIONAL</i>	<i>EXPERIENTIAL</i>	<i>EXPLORATORY</i>
AIMS	<i>Inform learners about language</i>	<i>Guide learners in practising the language</i>	<i>Provide exposure to language use, facilitate personal engagement</i>	<i>Help learners make discoveries about language</i>
LEARNING	Audio extracts Picture dictionaries Glossaries Grammar comics	Edugames Self-assessment tests Reading apps Listening apps	Digital stories Virtual tours Songs	Mystery and Lost series English quests Writing apps

Learning objects for the English language

Informative learning objects

The first two types of learning objects, informative and instructional, are the ones mostly used in the English classroom, according to [Richards \(1999\)](#), and the ones which have been generally associated with more traditional approaches to language teaching. The added value of technology in this case could be, among other things, in their potential for individualized instruction through quality multimedia design. The informative learning objects we developed, for instance, aim to inform English learners about different aspects

of the target language and they include glossaries (for lower secondary school) and picture dictionaries (for primary school) for vocabulary building, grammar comics for introducing specific lexicogrammatical features, reading comics for visualizing some texts, and audio extracts for listening comprehension activities. In the case of audio extracts we recorded the transcripts for the listening activities for lower secondary school textbooks and in this way we provided digital enrichment for specific textbooks. We placed each individual recording on the interactive textbook and we also packed all recordings of one textbook together for teachers to download. Although very useful to English language teachers, this type of digital content could have limited potential for re-use. To cater for this, we also used each one of these recordings separately together with their transcripts to prepare simple learning objects that were placed in Photodentro LOR with metadata that rendered them searchable. These audio extracts do not form on the own complete language activities but offer teachers the raw material they could use in any way they would like in their classroom; for instance, a teacher may use a recording to prepare a listening activity or introductory input for her lesson. The re-purposing of the audio extracts in this case aimed to offer the same digital content in several different forms giving teachers the opportunity to use the same digital content in different ways and for different educational purposes.

The development of glossaries and picture dictionaries was another interesting case of how we moved from enrichment to meaningful learning objects. The glossaries were prepared early in the project, during its enrichment phase, and included useful vocabulary for the five different textbooks used in the lower secondary school textbooks. They ranged from 600 to 2,000 terms each and their preparation took a lot of time and effort. Every term in the glossaries included a number of required fields (a code number for unit and lesson, the term, its definition, and an example) and some optional fields (synonyms, antonyms, and related words). Attention was paid to deliver the digital content in various forms: the glossary of each lesson can be accessed at the beginning of the lesson on the interactive textbook, while the glossary of the whole book is separately offered in the platform. In addition, a downloadable version was created together with a useful index of units and lessons. Still however, this digital content would have limited value outside the context of the specific textbook. For this reason, when we later moved to prepare glossaries for the primary school we placed emphasis on the visual aspect and adopted a different strategy. Taking into account that the same topics appeared in different textbooks, we decided to organize thematic picture dictionaries that could be used in more than one books. At an initial stage we identified 30 topics (e.g. clothes, food, hobbies, jobs, school, etc.) and we selected the words to be visually represented by recording the vocabulary of three different textbooks used in fourth, fifth, and sixth grade. These words were then grouped into sub-themes so that they could be

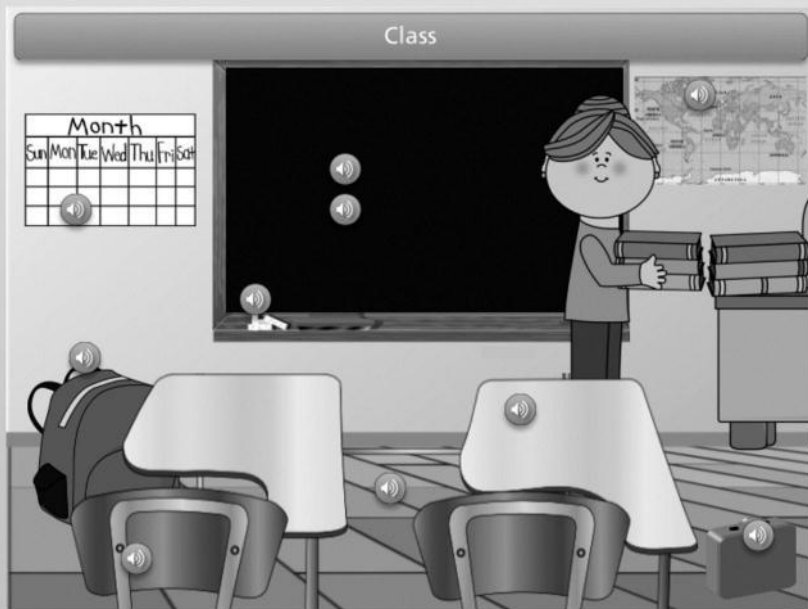
presented together in a contextual way. For instance, each one of the slides in the picture dictionary on household chores presents a different room of the house and the things that need to be done in each one of them. English learners have the opportunity to see a picture of a word included in the picture dictionary, check its spelling, and listen to its pronunciation. In addition, whenever possible picture dictionaries are also enriched with meaningful animations, graphical representations, music, and songs. Therefore, in contrast to glossaries, the design of picture dictionaries enhances their potential for reusability since they constitute independent learning objects which however support contextual learning.

School



NEXT >

School



Class



< PREV

NEXT >



Figures 19.1–19.3 Screenshot from the school picture dictionary: outside the school, inside the classroom, and in the playground

Instructional learning objects

The instructional learning objects we produced aim to guide the learner in practicing the English language and include edugames, self-assessment tests, reading apps, and listening apps. The added value of the designed edugames lies on the use of 10 flash-engines for well-known games and puzzles, such as crossword, matching, anagram, hangman, etc., which allows the replay of the same game with different content. When a learner presses the ‘try again’ button, the flash-engine randomly selects a few words with their hints from the ones that were saved in the application, and a crossword with different words appears on the screen, allowing the learners to play the same game several times and to consolidate focused vocabulary found, for instance, in a lesson. Addressing learners of different ages, we paid particular attention to the graphics of these edugames: illustrative graphics with simple lines used for lower secondary school learners were replaced by more colorful and appealing graphics for fifth and sixth graders, and by even more playful ones for third and fourth graders. To enhance their potential for re-use, an important criterion for digital materials to be considered as learning objects, we turned

to thematic edugames (e.g. a crossword on colors) and edugames that focus on a grammatical element (e.g. use of a tense or a particular preposition).

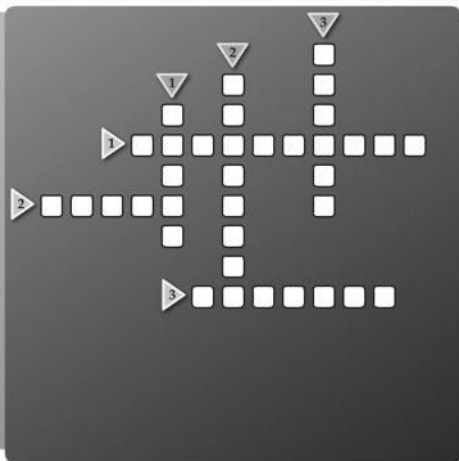


Crossword

Check

Try again

- 1 Toasted bread
- 2 A tuna _____
- 3 Basic pizza ingredient
- 1 A bowl of _____. Often eaten with milk in the morning
- 2 Fish and _____, popular take-away meal in the UK
- 3 Hen



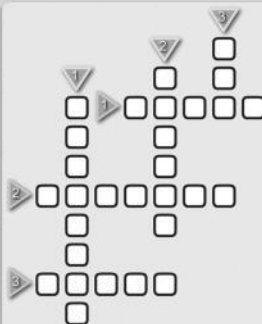
Crossword

Έλεγχος

Λύση

Ξανά

- 1 When you buy things, check if the packaging is environmentally-_____.
- 2 A container with a narrow neck used to hold liquids.
- 3 A container for waste.
- 1 One thousand kilograms.
- 2 A piece of paper given to people to inform them about a topic or a problem.
- 3 Bottles are made of this.



Crossword

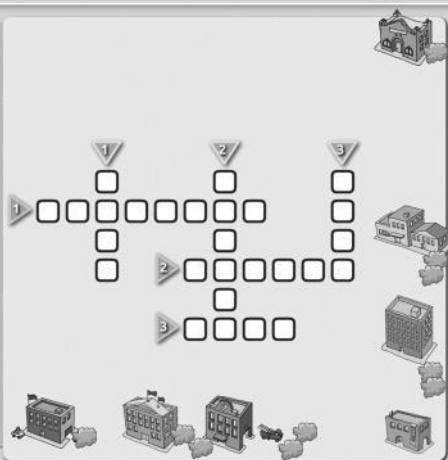


Έλεγχος

Λύση

Ξανά

- 1 This animal lives in a pond, it loves swimming but it can't run.
- 2 It's an animal and it rhymes with Easel.
- 3 It's not hot.
- 1 A small animal that lives in trees, it's cute and kind.
- 2 It's in the sea.
- 3 He's not fast.



Figures 19.4–19.6 A crossword for teenagers, for sixth grade, and for third grade

While each one of the 10 edugames followed the same specific pattern, the interactive reading apps that were developed for fourth, fifth, and sixth grades were based on a reading text each time and they followed a story line with texts and activities. Their aim is to make accessible reading texts from textbooks supporting comprehension with graphics, visual materials, and sound. Each reading app has its own unique structure which is outlined by content developers in a storyboard before it is transferred into its digital form. This variety in structure is to be seen as a feature that will trigger learners' curiosity and motivation, since every time they encounter a different type of application.

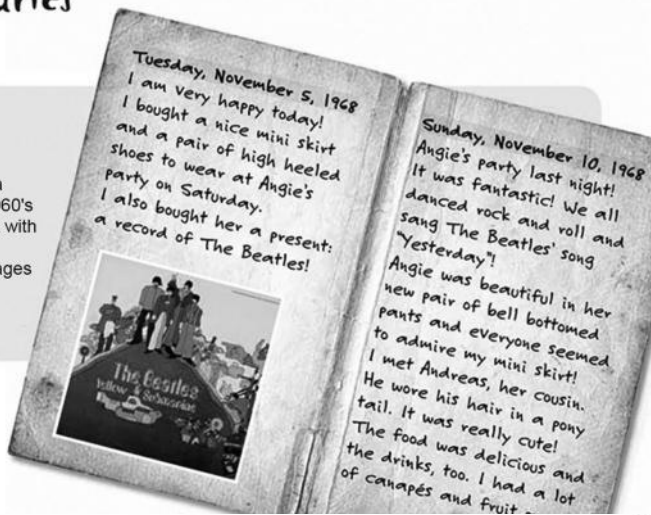
Lesson 1 Diaries

1. Reading



A. Anastasia's grandmother was a young girl in the 1960's and lived in the UK with her parents. These are a few pages from her diary Anastasia found.

Read the pages quickly to find out how her grandmother used to spend her weekends.



NEXT >



Figures 19.7–19.9 A reading text as it appears on the textbook and two screenshots from the reading app

Experiential learning objects

Experiential learning objects, as defined in the context of this project, aim at providing learners with experience of the target language and culture and at facilitating personal engagement, whenever possible. They include virtual tours, digital stories, and multimedia applications with seasonal songs for young learners and unlike instructional learning objects, they are meant to function as additional resources and are not accompanied by any language activities.

In order to make spatial relationships relevant to English learners, we prepared short videos of landmarks and locations mentioned in the texts of the English textbooks. Using Google Earth tools these short virtual tours of cultural sites enriched with enhanced navigation, street view imagery, and 360° panoramic views of selected landmarks (e.g. the Opera House in Sydney, Taj Mahal in India, the Colosseum in Italy) bring a glimpse of local cultures in the classroom.

LESSON 3 • DIFFERENT PLACES - DIFFERENT BUILDINGS



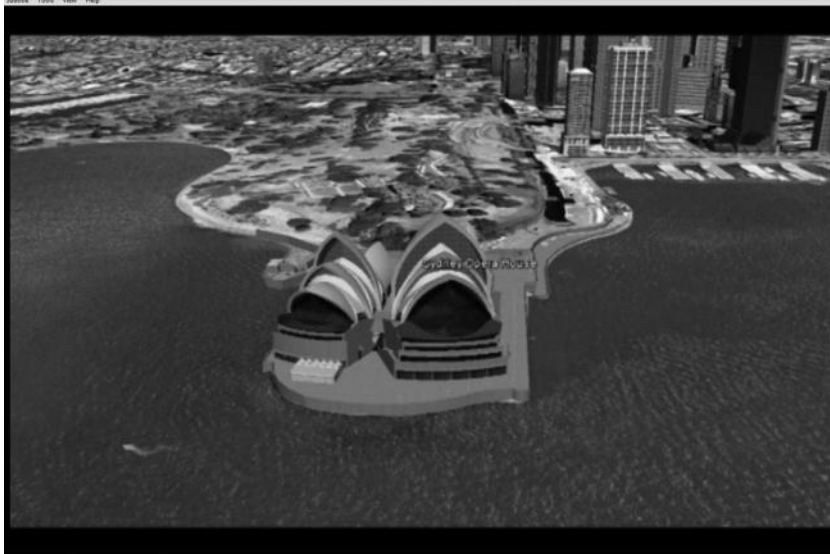
Virtual Tour

The Sydney Opera House is located in Sydney, Australia and is one of the most distinctive and famous 20th century buildings. It is also one of the world's most famous performing arts venues and since its opening, it has become a symbol of Sydney. Designed by Danish architect Jørn Utzon, it reaches out into Sydney Harbour and its spectacular roof reminds us of a moving ship at full sail! Construction began in March 1959 and it was completed in 1973 at a cost of \$102 million! It is very large (183m x 120m) and it is supported on 580 concrete piers sunk up to 25m below sea level. The roofs of the House are constructed of 1,056,000 white granite tiles and the interior is composed of pink granite and wood. It has about 1,000 rooms, 5 theatres, 5 rehearsal studios, 2 main halls and a multitude of restaurants, bars and souvenir shops. What you may not be aware of is that you've probably seen this breathtaking structure featured in films such as "Mission Impossible II", "Independence Day", "Finding Nemo" and many more!

Adapted from: www.en.wikipedia.org




Subtitles Tools View Help



Figures 19.10–19.11 Learners read a text on Sydney Opera House from the interactive textbook and then watch the virtual tour video

Similarly, our digital stories are visualizations in video form which aim to enhance learners' understanding of reading texts. By integrating several semiotic resources including audio recording, verbal cues, subtitles, sound effects, music, animation, still, and moving pictures, we attempted to familiarize English learners with demanding reading texts in their textbooks. Different digital stories were produced that focused on an important person (hero or character stories), specific events (accomplishment or adventure

stories), personal stories (e.g. about family celebrations), narratives (short stories, myths, and folk tales), biographies, and documentaries.




Here is the story of the Wright Brothers.
Read the sentences on the right and put them in the right place in the text:

a. They made kites.
b. It was a toy helicopter.
c. They opened a bicycle shop.

The Wright Brothers

Wilbur and Orville Wright invented the first aeroplane in the United States of America in 1903. The Wright brothers thought of the flight when one day their father returned from a trip and surprised the boys with a small toy. (1) The boys admired the toy very much and they said that they wanted to fly. While the boys were growing up, they were always repairing and fixing things. (2) and sold them to classmates.
Later, (3) and repaired bicycles. They used the money from the bicycle shop for their first flight experiments. The historic flight lasted for just 12 seconds and covered about 120 feet. This changed the world forever.



Sources: <http://www.nasm.si.edu/wrightbrothers/>, www.wright-house.com/wright-brothers



Figures 19.12–19.13 A text on the Wright brothers and the digital story

Finally, for our young learners we prepared multimedia applications for seasonal songs (Christmas, Easter, Mother’s Day, and Halloween) in which

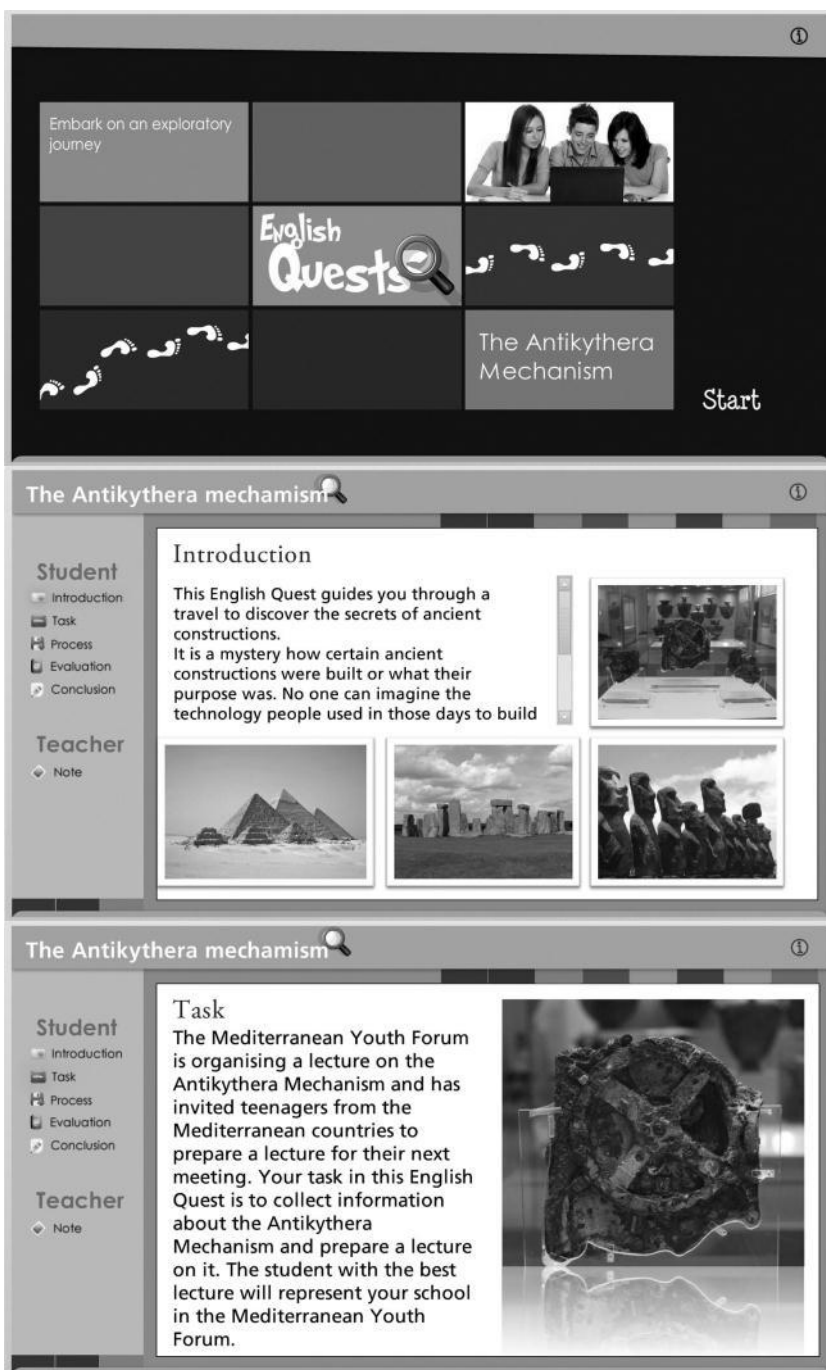
pupils listen to the song, read the lyrics accompanied by video and animations while singing along. Overall, the aim of the different experiential learning objects was to expose learners to aspects of ‘other’ cultures. These ‘other’ cultures included both the target cultures where English is spoken as a mother tongue (e.g. the British, the American, or the Australian), as well as other cultures in which English may be used as a contact language among people of different nationalities. In fact, this approach towards the incorporation of various cultures in the teaching of English, which was supported by our group and was adopted in the pedagogical design of our learning objects, was also the ideological stance adopted by the textbook designers as described in the textbooks’ teacher books.

Exploratory learning objects

Exploratory learning objects, as conceptualized in this project, aim to help learners make discoveries about the language through problem-solving, scaffolding, and project-based applications, and they include the mystery and lost series applications, English quests, and genre-based writing apps. This category includes the most demanding to produce learning objects both in terms of content and multimedia design.

The ‘Mystery’ and ‘Lost’ series are scenario-based applications in which learners are called to follow Sherlock in order to solve a mystery or engage in an activity to retrieve a lost item. In order to sensitize students to Braille code as a distinct language, one mystery application invites learners to find the thief of a famous painting. To solve the mystery learners need to decode a hidden message by a blind witness who heard the thief, get some training in Braille, and follow the clues in order to get back the painting. Although these applications may relate to a text or an activity of the English textbooks, they fulfill all the criteria of independent learning objects and can be used independently.

In addition, following the structure of webquests, we turned the projects which appear in English textbooks into English Quests applications, inviting learners to search through web links, assess a given problem, collect, and analyze information about it from different sources and finally synthesize a response of some kind by creating a final on- or off-line project. These learning objects draw insights from project-based learning by combining it with the structure of webquests and they consist of introduction, task description, process, evaluation, conclusion, and teacher instructions. They also ensure that these suggestions for project work, which have been taken from the English textbooks, will be available for use even when the specific textbooks stop being used in the Greek schools. For the materialization of these learning objects we used materials from the textbooks themselves, the teachers’ books, and we also added our own evaluation rubrics and content, whenever necessary.



Figures 19.14–19.16 Screenshots from an English quest on the ancient Antikythera mechanism

Our last type of learning objects, writing apps, implements a genre-based pedagogy (Rothery, 1996) for writing instruction. Their aim is to familiarize learners with different writing genres (e.g. article, narrative, description, report, mediation, journal entry, poster, advice letter, etc.) and to guide them in the various stages of genre writing by analyzing the communicative context of the writing task, modeling the genre, illustrating appropriate organizational and language choices, and scaffolding the writing process. The applications consist of an introduction, writing task presentation and analysis of the communicative context, model text analysis, scaffolding of the writing process and language bank with useful lexicogrammatical features. Therefore, far from claiming neutrality, the designed learning objects of this type, as well as the other types presented above, have embedded in them specific pedagogical principles for language learning and teaching.

Towards a meaningful pedagogy for learning objects

The above eclectic account aimed to illustrate how in the course of the Digital School project, we have managed to overcome some of the problems associated with previous conceptions of the learning objects. For instance, in our attempt to develop contextualized and meaningful digital materials, we designed experiential and exploratory learning objects that could be used for collaborative and inquiry-based learning activating scaffolding, project-based and problem-solving activities while at the same time exposing learners to experiences with their culture and the culture of the ‘other,’ key features of foreign language education today. At the same time, we developed presentation and instructional learning objects in order to cover other aspects of the English curriculum and to account for opportunities for individualized and personalized instruction.

Adopting a principled approach to the development of learning objects, we projected pedagogical considerations, content integrity, and internal cohesion over technical matters in our attempt to make these learning objects meaningful to English teachers and learners. To this purpose, we prepared learning objects which varied in length (taking into account the requirements of specific applications), and we also accounted for different pacing (e.g. to be determined by the learner, as in the case of English quests and mystery series, or to be determined by the application, as in the case of digital stories and virtual tours). Concerning multimodality and multimedia, during the design phase we often faced challenges concerning how to choose the most appropriate modes (e.g. written text, subtitles, images, animation, moving picture, music, voice over, etc.) for each type of applications, how to combine different modes, what reading paths to design, and what kinds of interactivity patterns to select each time. Taking into account that learners learn in different ways, we catered for different learning styles by combining different modes and by developing different learning objects using the same resources. Most

importantly, in an attempt to avoid decontextualized learning, we developed learning objects that could ‘stand on their own’ and could be used independently, but which at the same time have a rich context (e.g. scenario-based applications, genre-based writing tasks, and picture dictionaries) that would facilitate language learning and provide rich language opportunities.

Overall, this chapter has suggested that learning objects can be useful in the English curriculum, offering learners representations of ideas and content in ways that it would be difficult if not impossible with previous non-digital forms (Churchill & Hedberg, 2009). The project presented in this chapter has hopefully contributed to the direction of showing that learning objects can “be conceptualized in a way that does not isolate or neutralized them in terms of their specific pedagogical contextualization and application” (Caws et al., 2006:113) and that they can be successfully embedded in contemporary pedagogical designs for language learning.

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