

## **CULTURE-BASED LANGUAGE LEARNING OBJECTS: A CALL APPROACH FOR A UBIQUITOUS WORLD**

### **DRAFT**

#### **ABSTRACT**

This chapter presents Culture-Based Language Learning Objects (CLLOs) in Computer Assisted Language Learning (CALL), supported by user-centred Interaction Design. CLLOs' design has been drawn on (i) social constructivist pedagogical theories, (ii) self-organised strategies in social contexts and (iii) Scandura's structural analysis and Gange's instructional events. The chapter discusses the culture-based language learning principles and the rationale on which the construction and use of the CLLOs are founded on. It also makes suggestions about the ways CLLOs can be constructed by second/foreign language (L2) teachers. A CLLO example was designed and presented for the context of the Greek Diaspora in the UK. Furthermore, it introduces the combination of norm-based and culture-based language learning in CALL, the grey zone as the distance between second and foreign language learning, the open nature in Learning Objects with the use of forums or chats. Lastly, it suggests CLLOs networks use in the age of Ubiquitous Computing.

**Keywords:** CALL, Culture-Based Language Learning Objects, Interaction Design, Ubiquitous Computing, Self-Organised Learning, Structural Analysis, Instructional Events, Metadata

#### **INTRODUCTION**

The last years the possibilities for computer enhanced language learning have been on the forefront of educational studies. There are two reasons for the increased interest in Computer Assisted Language Learning (CALL): (a) the fast paced technological changes in the recent years, and (b) the new methods of teaching/learning languages, one of which is the culture-based learning. Ubiquitous computing sees computers not as simple technological tools that facilitate the everyday transactions, but as an integral part of contemporary life. One of the main principles of ubiquitous computing is that computers will not be more mobile than they are already, although the information will (Ziveldis, 2004). Hence, interoperability for systems accessibility could suggest new inventions for problems that already exist, for instance the communication among second/foreign language (L2) learners. Self-directed learning in L2 environments lifts the barriers of time and space and facilitates the language teacher. Therefore, blended learning, which combines both online and offline learning modes, can be an approach within the ubiquitous computing framework. Our proposal within the ubiquitous computing and CALL framework aims at (i) improving L2 learning, (ii) enhancing communication, (iii) supporting new forms of creativity and expression, and (iv) providing an enjoyable and exciting L2 learning mode.

Taking into consideration that learning always occurs in social contexts (Vygotsky, 1978), the potential of CALL and the advantages of culture-based L2 learning as well as our experience in the Greek language classes (GLCs) in the UK, we decided to conduct a questionnaire survey in order to investigate learners' interests and needs. The questionnaire findings helped us identify the objectives of Culture-based Language Learning Objects (CLLOs) and consequently design an example of a learning object. The objectives of the

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proposed CLLO regarding scalable ubiquitous computing distributed systems are to: (a) enhance individualistic learning in the particular social context of GLCs; (b) provide access of language learning independent of time and space and (c) support the design for networks that can expand and handle a growing number of devices, integrated into everyday life. Thereafter, in the proposed design, one part emphasises the theory and other examines engineering.

## SECOND/FOREIGN LANGUAGE LEARNING AND CALL

Social constructivist theorists such as Bruner (1966) and Vygotsky (1978) view learning as a process in which students are actively involved and learn through interaction with their peers assisted by their teachers. However, the discovery of knowledge as such springs from their intrinsic motivation and personal past and present life experiences.

Kern & Warschauer (2000) claim that the foundations of the social constructivist language pedagogy in CALL and L2 learning have created teaching principles according to which the target language is acquired through both interaction among the learners via computer (the socio-cognitive perspective in CALL) and interaction between the learner and the computer (the cognitive perspective in CALL). Since learners view the computer as tool of learning and as a means of communication, the intrinsic motivational aspect of the computer is seen as an important quality of CALL. Furthermore, research has shown that the socio-cognitive applications of CALL offer learners opportunities to use the target language in meaningful situations. It has also been observed that in these applications there is an increased language input and output as well as learners' active participation and self-expression (Vlachos et al 2004). Finally, the social constructivist perspective in CALL has created principles according to which:

- (i) Learners may exhibit *behavioural changes* after being involved in CALL learning processes;
- (ii) *Process-based learning* is identified in the context of 'becoming' an energetic member of discourse communities. Mimesis of the community members' language may lead to behavioural changes and language learning;
- (iii) *Social construction of meaning* occurs as a mode of *internalisation of simulated language forms of communication*; and
- (iv) Internal reciprocity may result to *creative collaborative textual production*.

CALL applications, which foster the so far discussed principles, give learners opportunities to define their purpose, learning process, and outcome, reflect on and evaluate them using verbal reasoning. Furthermore, according to Lambropoulos (2004), Self-Organised Learning by Observation in Social contexts (SOLOS) in CALL environments could occur in two levels:

- (i) internalisation of social construction of meaning via
  - > self-observation that aims at the development of the learners' self-awareness, regarding learning (Bekoff, 2002)
  - > observation of the 'object' (Bandura, 1986). This helps learners enhance their understanding of the semantic and pragmatic aspects of the target language as well as its structure
  - > perspective taking, mimesis of the language exemplified in the learning object (Auerbach, 1953)
- (ii) externalisation for outer self-explanation and self-expression via interaction (Lambropoulos, 2005).

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Therefore, social constructivism and SOLOS may create an environment for active learning in which learners can become the constructors of their own knowledge, whereas the teacher has the role of the facilitator who monitors the learning activities, offers guidance, feedback and support (Vlachos et al, 2004).

## **CULTURE-BASED LANGUAGE LEARNING AND CALL**

According to Sifakis and Sougari (2003, p.63), in the past in many L2 contexts the norm-based approach was usually adopted. This approach was a rigid procedure since the target language was mainly taught through specific linguistic rules that helped learners to acquire an understanding of each linguistic system (usage) and little attention was paid to the function of the linguistic items in the system of communication (use). However, after the advent of the communicative approach in L2 learning, applied linguists claimed that language and cultural learning cannot take place independent of each other because culture is an integral part of language and vice versa (Fengyan, 2002; Kramsch, 1993; Byram, 1994). Byram (1994) also states that only if the cultural context is understood, the target language can be thoroughly comprehensive.

The culture-based approach sees language as an instrument for communication among people and at the same time it shields learners from the negative effects of norm-based approach such as boredom, disinterest, and repulsion (Sifakis & Sougari, 2003). According to Krasner (1999), linguistic competence alone is not enough for learners of L2. Due to the fact that language reflects the cultural values of a society, language learners need to know particular patterns of speaking behaviour, such as the use of formal or informal types of questions/answers, associated with cultural behaviour that are appropriate in the community of the target language. For example, they need to be aware of the culturally appropriate ways to address people, express gratitude, make requests, and agree or disagree with someone. They also need to be aware of the differences between the language patterns that are appropriate in the different communities they belong to.

According to Hammerly (1982), culture-based L2 learning can cover three areas by giving: a) information about the native speakers' society; history and geography of their country, so that learners can get a sense of the world view that native speakers have of themselves and their own country (*information culture*); b) information about attitudes, values, etc. so that pupils can acquire particular patterns of speaking behaviour associated with cultural behaviour that are appropriate in the community of the target language (*behavioural culture*); and c) information about artistic and literary accomplishments so that pupils can acquire a complete view of the target culture and language (*achievement culture*).

The culture-based L2 teaching and learning could be implemented through CALL as learners can be engaged in simulations with computer applications through role taking, working on meanings that have cultural associations and make inferences. The facilities CALL offers, such as sound, graphics and multimedia resources, may illustrate the socio-cultural context the target language occurs and give learners the opportunity to discover more about the target language and culture (Vlachos et al, 2004). Additionally, CALL applications can offer learners also the chance to use synchronous and asynchronous online communication with native as well as with other speakers of the target language. Thus, they can retrieve cultural and social information directly from native speakers, discuss topics of common interest, and

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expand their knowledge on cultural codes, tolerable and intolerable patterns of verbal behaviour in the contexts where the target language naturally occurs.

Based on both the flexibility and interoperability required in ubiquitous computing and on the complexity of the language learning environment, the CLLOs approach may offer (i) practice in the structure of the target language; (ii) information as regards the cultural background in which the target language is contextualised; and (iii) the stimuli for individual engagement in the real classroom, online discussions or elsewhere.

## **LEARNING GREEK AS SECOND/FOREIGN LANGUAGE IN THE UK - CURRENT PRACTICES**

According to Karatzia-Stavliotis et al (1999), the majority of learners that attend Greek Language Classes (GLC) in the UK is the Greek-Cypriot students who are children of second, third and fourth generation of immigrants. There are different degrees of language acquisition and use regarding the different generations of immigrants (Damanakis, 1998; Georgoyiannis, 1999). The tendency that has been observed in most of minority communities, as well as the Greek –Cypriot community in the UK, is that in early childhood, children use their parents’ mother tongue within the family or the community. On the other hand, from the time they enter schooling and are introduced systematically to the language of the dominant group (English), they start mainly use this. So, one of the main characteristics of the language of immigrants, is that it lacks an immediate space of use (Damanakis, 1998). Lambropoulos & Christopoulou (2004) assert that it could be supported that the learning of the Greek language in the UK takes place into a ‘grey zone’ between the second and foreign language. They use the metaphor of the ‘grey zone’ to indicate the distance between the foreign and second language learning.

According to Karatzia-Stavliotis et al (1999) and Luka-Grann (1999) the Greek-Cypriot students rely on the English language for their every day communication, as the latter is considered by them to be a language of higher status. This happens because English is the language which is used in school exams and it will enable them to acquire upward social mobility. Anecdotal evidence from Greek schoolteachers shows that Greek-Cypriot students often express their apathy to learning the Greek language since they perceive it as having no benefit in their lives. In many cases they find pointless to learn a language that will have limited role in their future, especially when this language happens not to be the same one that they speak at home. Still, the language Greek-Cypriot students are supposed to learn, if they want to preserve their home-country language, is the Modern Greek, which varies from the Cypriot dialect in accent, grammatical and syntactical structure. The Greek language, the Cypriot dialect and the English language compose a ‘linguistic triad’ that could ideally enable students to build a network of linguistic possibilities on which they would draw upon. However, in practice, this creates more problems because the students, who only speak partly the Cypriot dialect, feel confused by the different accents and dialects used by their teachers (Karyolemou, 1997). The ‘mismatching’ between the Greek-Cypriot and the standard Greek and the comparison between the two dialects seem to be another impediment since pupils feel that they do not speak the ‘proper’ Greek and as a result they impose themselves into a self-censorship.

Greek Diaspora is supported by two main types of educational provision for Greek-Cypriot students: the regular Greek schools and Greek Language Classes<sup>1</sup> (*Τμήματα Μητρικής*

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<sup>1</sup> According to the Greek Ministry of National Education and Religious Affairs, by 1996 there were 523 GLCs in the UK and 5.890 students attending them (cited in Georgoyiannis, 1999:83-84).

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*Γλώσσας*). GLCs are community schools, which operate in the afternoons or on Saturdays. According to Karatzia-Stavliotis et al (1999), age ranges differ in the same GLC, as not all student start attending the lessons at the same age, and incidents of students' sudden interruption, as well as returning in the GLCs are more than frequent<sup>2</sup> (Karatzia-Stavliotis et al, 1999). Thus, different levels of cognitive development can be found among students of the same class.

Educational materials, such as, textbooks and other teaching resources, provided by the Greek and Greek/Cypriot states are not appropriate because they: (i) presuppose a specific language pre-acquisition level, which students most of the times do not possess (Luka-Grann, 1999); (ii) their authors do not take into account that students have already learnt the English structure and grammar, which interfere when learning the grammatical and structural rules of the Greek language (Luka-Grann, 1999); and (iii) since the particular educational materials have been produced in Greece or Cyprus up to the date this chapter was written, they lack references to pupils' life experiences. Moreover, they give priority to learning the structure of the Greek language. GLC's curriculum ignores current trends in teaching and learning second/foreign languages that emphasise on helping learners to develop their communicative skills through purposeful and realistic tasks which are embedded in contexts similar to the ones in which the target language is used (Kamberi & Vlachos 2003).

The use of CALL in teaching and learning Greek in the Diaspora is not widely expanded although it has the potential to create social networks and bring Greeks together. To our knowledge, there is only one online environment that provides access to material and discussion fori regarding learning Greek language based on the theory of distributed constructionism (Zaphiris et al., 2003). Another project called DiaLogos (Kourtis-Kazoullis, 2003) created asynchronous collaborations between schools in Cyprus, Greece and Canada. There are two more projects focused on eLearning and the use of social contexts as the background of communication: one by the University of Crete (Pedia Omogenon) and the OIKADE project ([www.oikade.gr](http://www.oikade.gr)) supported by the Bank of Cyprus. The above projects have tried to integrate online material and the use of online (synchronous or asynchronous) discussions. However, they are not based on scalable networks and the context is independent of students' and teachers' needs and involvement in the interaction design processes.

## **IDENTIFICATION OF USERS' NEEDS AND SUGGESTIONS - DISCUSSION OF THE QUESTIONNAIRE SURVEY FINDINGS**

Before designing CLLOs, we took under consideration the previous CALL applications, constructivist theories, the theory of culture-based learning and the context of Greek Diaspora in the UK. Because the authors had some experience in the ways GLCs operate, they decided to investigate students' needs, interests and preferences towards learning the Greek language before moving on the design of the proposed CLLO. A decision was made to conduct a small-scale questionnaire survey because this (a) allows generalisations, (b) is a rapid and easy method for collecting data, and (c) ensures anonymity and confidentiality (Bell, 1999; Robson, 1993; Cohen et al., 2000). It was anticipated that this kind of research could reveal learners' motivation and suggestions about the means and tools, which could be used for learning the Greek language in the GLCs.

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<sup>2</sup> Some of the students stop their attendance either because they do not like GLCs or because of the priorities they set in accordance to their English school academic activities.

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As GLCs are spread all over London it was decided to conduct the questionnaire survey in only two districts. Turnpike Lane and Friern Barnet were chosen because distances between schools were short. Also as one of the authors has worked at schools there and it was easier to obtain permissions from the head teachers of the schools for conducting the research. Moreover, students of Grades five and six were selected because they had some experience in the operation of GLCs, which could allow them to make suggestions for improvements in the learning procedure. The research was conducted between the 29<sup>th</sup> of September and the 3<sup>rd</sup> of October 2004. Fifty-three students of a total of 61 of the sample population filled in the questionnaires making a response rate of 87%. The questionnaire had three sections, which elicited information about (a) respondents, (b) preferences in learning Greek language and computers, and (c) cultural and language learning.

Ninety-four per cent of the respondents said they were born in the UK and more than half of them (53%) said they were immigrants of third or fourth generations. Fifty-nine percent of them said they mainly used the English language at home, while 42% said they used both English and Greek. However, it was not possible to deduce from the findings how often or how well they used the Greek language at home, or in what extent they used mixed code (*switch-coding*) (Georgyiannis, 1999).

Findings revealed that almost all students used computers at home (98,1%). More than half of them said they used a Word Processor, chat and games, whereas 9,4% of them said they preferred only playing. Thirteen percent of respondents said they used MSN Messenger. The fact that the vast majority of respondents said they were familiar with information communication technologies was encouraging. Moreover, the competence in the use of the computer and synchronous communication via the Internet could activate students to learn and use the target language both in the physical classroom and through distant learning modes when they are at home.

Respondents also said that a computer-assisted and culture-based learning would be more interesting (49%) and useful (44%). Moreover, the vast majority (78%) believed that using computers in GLCs would make the lesson more interesting, while 25% said that learning the Greek language would be easier. It seems, therefore, that the use of the technologies in the classroom may be motivating and may reduce the boredom that norm-based learning can cause. It also seems that well designed collaborative activities may give students the freedom to express themselves using the different commands in the Greek language they have.

In one of the questions respondents were asked to select whether by using computers they would prefer to learn about (i) only the grammar and syntax of the Greek language, (ii) only the Greek / Greek-Cypriot culture, or (iii) both. Thirty-four per cent of them answered that they preferred to be taught both about Greek language grammar, syntax rules and Greek/Greek-Cypriot culture (arts, history and geography). It can be deduced, therefore, that these respondents recognised the need to be taught the structure of the target language in a contextualised manner so that they would be able to use the structures taught in communicative situations. Moreover, because lessons in GLCs are too repetitive regarding their structure and content, these respondents seemed to believe that language learning could be enhanced by cultural learning as it might be more interesting. More than half of respondents said they preferred to be taught the cultural elements of the target language without any special attention to its form, i.e. grammar and syntax. It seems that cultural knowledge appeared to be essential for these respondents may be because it can give them

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the opportunity to achieve the desired level of competence in the Greek language through computer assisted and culture-based learning.

Respondents were also asked to suggest what they wanted to be included in a CALL environment. Forty-three percent of them said they wanted texts, images, sounds and multimedia to be included, and 19% said they wanted only images. It seems that information about language or culture is better to be provided in different forms, as it may be more motivating for learning. Regarding the help and feedback students would receive in learning procedure, more than half of respondents (54,7%) said they preferred the combination of teachers' support with automatic immediate feedback from the computer. On the other hand, 18,9% suggested that they wanted solely teachers' help in contrast to an automatic immediate feedback (15,1%). A significant ratio (11,3%) did not answer the question, which may indicate that these respondents were not sure about the mode of feedback they needed. The fact that students said they preferred the use of the Internet (76,9%) and CALL (73,6%) means that CALL activities were preferred to be online. It can be deduced, therefore, that the dual form of feedback as well as synchronous and asynchronous communication with the use of wikis, chats and discussion forums could provide learners' an immediate space for communication. Finally, 74% of respondents said they wanted to have an opportunity to send their opinion to CALL developers and criticise the structure and the content of the programme so that the developers can make useful changes.

In conclusion, the majority of respondents (i) recognised the need for learning the culture of Greek language in a communicative environment; (ii) were familiar with Information Communication Technologies (ICT) and considered that they could be motivated by the use of CALL; (iii) preferred to receive help and feedback from their teachers in classrooms and feedback from the computers, and (iv) preferred to have personal online contact with the developers of CALL environments. It can be suggested, therefore, that integrating cultural and blended learning into the L2 curriculum can motivate students to learn the target language and help them associate the language meanings, functions, structures and codes taught with the communicative situations in which these meanings are used.

## **INTERACTION DESIGN FOR GREEK LANGUAGE LEARNING IN THE GREEK DIASPORA**

We attempted to integrate sociability (Preece et al., 2002) and usability (Shneiderman & Plaisant, 2004) in the user-centred design for CLLOs as interactive entities. Bruner's (1966) constructivism, Scandura's structural analysis (2004) for grammatical and syntactical problems and Gagné et al's (1992) instructional events underpinned the process and the design. Structural analysis (SA, Scandura, 2004) is a methodology used widely in mathematics and in authoring tools and software engineering. Based on the minimum capabilities possessed by the learners, SA identifies the rules to be learned for a given topic or class of tasks by breaking them down into their atomic components. The latter is the one of the LOs principles. The Sharable Content Object Reference Model (SCORM) (2000) suggests a standard definition of a LO: it is modelled as the smallest stand-alone and meaningful component of a course that is interoperable, modular, and discoverable. 'Learning Objects' (LOs), (Boyle, 2003), are reusable components in knowledge databases that provide flexibility in virtual learning environments for reusability, generativity, adaptability and scalability.

The suggested LOs' principles are:

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- (i) *Cohesion*: each unit should explain one thing and only one thing (Sommerville, 2000);
- (ii) *Minimised de-coupling*: each unit should have minimal bindings to other units. The content of one LO should not be used by another LO. In addition, it should use elements that exist in a different LO in order to create necessary dependencies for indexation, based on the structure or function that is taught; and
- (iii) *Motivation and Interdisciplinarity*: LOs should provide rich and effective learning experiences. The cohesive, decoupled and pedagogically rich LOs could offer the challenge for cross-curriculum activities (repurposability).

Structural learning prescribes teaching the simplest solution path for a problem and then teaching more complex paths until the entire rule has been mastered. According to Bruner (1966), learning is an active process in which learners construct new ideas or concepts based upon their current/past knowledge. Bruner's theory of instruction addresses three major aspects: (i) predisposition towards learning, (ii) the ways in which a body of knowledge can be structured so that it can be most readily grasped by the learner, and (iii) the most effective sequences in which to present material. Anchored on these propositions, we decided to use Scandura's SA for domain analysis and Gagné et al's nine instructional events in order to create a solid basis for examining the design of the CLLO. In addition we took into account the findings of the questionnaire survey to establish the design. The events, which underpin the interface of each CLLO, were as follows:

- (i) gaining attention (reception)
- (ii) informing learners of the objective (expectancy)
- (iii) stimulating recall of prior learning (retrieval)
- (iv) presenting the stimulus (selective perception)
- (v) providing learning guidance (semantic encoding)
- (vi) eliciting performance (responding)
- (vii) providing feedback (reinforcement)
- (iix) assessing performance (retrieval)
- (ix) enhancing retention and transfer (generalisation).

Moreover, we took under consideration that the necessity of integrating language learning into everyday life demands interoperability between the needed cooperative systems. In ubiquitous computing, interoperability allows connections between the systems by using certain standards. Hence, the wide use of XML metadata (metadata inserted using Extensible Mark-up Language) as a standard strategy, allows the LO to be received in any Internet-based and mobile device. XML documents are human-legible and reasonably clear and their design can be easily created and prepared quickly. Therefore, XML contributes to the change of the chaotic web to a semantic web. The Semantic Web (W3C)<sup>3</sup> provides a common framework that allows data to be shared and reused across application, enterprise, and community boundaries. It is based on the Resource Description Framework (RDF), which integrates a variety of applications using XML for syntax and URLs for naming (<http://www.w3.org/>). As a result, XML metadata allow the LOs to be connected to other LOs in order to create networks. Following Zaphiris et al.'s example (2003) for Greek language learning, we considered Participatory Design (PD, Resnick, et, 1997), preferably to other HCI design approaches, because it focuses on the intended user of the service or product, and advocates the active involvement of users throughout the design process. As the project was not funded

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<sup>3</sup>The Semantic Web is an extension of the current web in which information is given well-defined meaning, better enabling computers and people to work in cooperation (Berners et al, 2001).

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by any organization up to now, PD is potentially integrated as an aspect of both sociability and usability.

In the search for problem definition and analysis we followed the steps in SA (Scandura, 2004): (i) select a representative sample of problems; (ii) identify a solution rule for each problem; (iii) convert each solution rule into a higher order problem whose solutions is that rule; (iv) identify a higher order solution rule for solving the new problems; (v) eliminate redundant solution rules from the rule set; and (iv) steps three and four are essentially the same as steps one and two, and continue the process with each newly-identified set of solution rules. The result of repeatedly identifying higher order rules, and eliminating redundant rules, is a succession of rule sets, each consisting of rules which are simpler individually but collectively more powerful than the ones before.

In order to set intention, gain attention, allow and enhance awareness and activate information retrieval when teaching second/foreign languages, three factors need to be taken into account: (i) the topic areas to be included in the second/foreign language curriculum; (ii) the students' motivation for learning the target language and their perspectives towards the culture of the target language e.g. travel abroad, communication with relatives/friends, academic development; and (iii) the ways the target language is used by native speakers, which may refer to social codes and formal or informal language. This last factor can provide basic criteria for narrowing the aspects of the target culture to be included in the curriculum by taking into account how native speakers' perceive a certain place, i.e. Parthenon, or a historical event, e.g. Cyprus independence 1/10/1960. According to Fengyan (2002) all the above factors are important for making decisions on the content of the L2 curriculum. Students should be given background information so that they will be able to incorporate the new information into their world-view, and work as anthropologists by exploring and understanding the target language and culture in relation to the language they use in their everyday life (Peterson & Contrane, 2003). As such, cultural activities and objectives carefully organised and incorporated into sequences towards semantic encoding provide meaningful information to the learners.

Semantic encoding and presenting stimuli need to be based on authentic material<sup>4</sup> and resources from the native community. Artefacts, films, photographs, literature etc can be used as sources of teaching materials. In the case of elementary students who cannot cope with the complexity of the language of authentic materials, teachers can use semi-authentic material, i.e. written or spoken texts that have the characteristics of authentic material but they are adapted to the level of language of the students. In the particular CLO we used authentic material. Based on the aforementioned theories and the survey findings a prototype of CLLO was constructed. Next in this chapter we offer an example of a CLLO for the Greek Diaspora in the UK, presenting the construction, indexation, packaging and delivery.

### **LLOs Construction**

In most L2 learning contexts the appearance of common mistakes, for example in the use of the tenses, cases, etc, may be used as a guide or map for the creation of LLOs which will aim at improving the learners' competence in the language components that are in need of attention. Teachers can design LLO units if they, by using Intelligent Dynamic Enquiry (IDE) methodology (Lambropoulos, 2004b), investigate and identify the common mistakes their

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<sup>4</sup> According to Fengyan (2002) authentic materials are these that are taken from real life without being adapted such as radio/ T V programs, magazines newspapers, maps of cities, postcards, train/bus tickets, etc. These can give learners some insights about native speakers daily life.

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students make. IDE is anchored in London and McMillen's work (1992) on a community development project. IDE is headed to result in a successful intervention based on: the design of "what would be studied", the process of inquiry or "how the information would be collected", the interpretation of data, or "how they would make sense of what they discovered". IDE heads towards the articulation of a collective reality that encompasses individual views, problems, underlying causes of the problems and solutions suggested by the members of an online community. IDE uses synchronous content management systems software for information tagging and works towards a dynamic structure, hierarchical clustering, non-stationary data learning and the parameter of self-adjustment especially when data are related to time on the Internet. IDE's bottom up strategy is needed for three reasons: (i) to identify the common mistakes; (ii) to suggest ways of helping the students to understand and correct their mistakes; and (iii) to identify LOs initial basis for indexation. Since we are seeking a user-centred approach to establish design, the recognition of patterns should have been coherent and systemised. As each class is a different situation, it is suggested that the teacher of a given class is the most appropriate person for identifying the linguistic weaknesses students might have.

Interaction Design: Technical Issues on Building Multimedia CLLOs: The criteria of sociability and usability was anchored in learners' preferences, Scandura's SA and Gagne et al's instructional events as well as Boyle's (2003) suggestions for LO construction. The introductory page of our CLLO addresses the topic and informs the learners of the objective (expectancy). The design and the colours are carefully constructed to gain attention without destruction. LOs by design require prior learning (retrieval) so that they can be linked and work in a scalable network. The restricted number of cards in a LO and the use of cultural events aims to provide flexible learning guidance and selective perception based on learners' preferences in self-organised activities. The usability design suggested that: (i) the size should be the maximum of 720X420 pixels for all monitors; (ii) the navigation bar would better appear at the bottom in order not to let the mouse cross over the CLLO; (iii) the buttons for interactivity and information should be located either at the bottom or/and on the right panel. Information in our opinion should be limited to only what is necessary because of the technical restrictions. (iv) The maximum amount of CLLOs in a Learning Object and cluster is suggested to be eight for both; (v) the colours should not distract or interfere with the CLLOs but they should create a pleasant environment; (vi) the interactive elements would better provide the learner with immediate feedback as well as with explanation and instructions; (vii) a link for more information on the web regarding the cultural phenomenon can be available; (viii) a link for a discussion forum and/or a chat in which learners can have the opportunity to consolidate and expand the linguistic item or language function taught; (ix) an online dictionary for students' reference and (x) a CLLOs window button. The immediate feedback learners may receive functions as reinforcement and at the same time offers opportunities for assessing performance. Discussion fori as social contexts are crucial for the learners who may practice what they have learned from the CLLO in real interactions and communication, which reinforces communicative learning.

All media, such as text, sound, video and graphics, can be used to create LLOs and specifically CLLOs provided that the CLLO construction is one-goal-directed activity in relation to specific linguistic items, cultural codes or language functions. LOs should be arranged in a pre-defined indexation and metadata should be attached, based on the previous indexation. XML metadata can be attached to any kind of file e.g. ppt, doc, jpg, gif, html, avi, wav, simulation etc. Building interesting CLLOs is important because we are dealing with two parameters, the cultural and the grammatical. Hence, the use of interacting properties

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with text, image and sound might be a better solution. A multimedia CLLO, technically speaking, needs an html environment to be integrated. The properties that we have to consider are the language (use more than one languages) and the design i.e. the size, the navigation bar, the spaces for the information and the amount of information used, the maximum amount of CLLOs in a learning cluster, the colours and the interactive elements.

**LLOs Indexation:** Indexation is one of the most difficult parts when deciding the LLOs design and construction. The suggested sequence of indexation in this CLLO is based on the grammar and structure of Modern Greek language, and it should make LOs searchable in a horizontal and vertical arrangement. As such, the sequence is the following: Learning Objects, Learning Clusters, Learning Sets, Learning Units. Cultural indexation is suggested to take place following the cultural traditions in alphabetical order as well as a chronological order. LLOs are the one-goal directed learning activities e.g. feminine, plural, nominative case. *Language Learning Clusters* (LLCs) define a specific knowledge sub-domain e.g. cases in nouns. *Language Learning Sets* (LLSs) refer to the domain e.g. the feminine nouns. *Language Learning Units* (LLUs) describe the overall domain e.g. the nouns. We used the packaging that the European Knowledge Pool organisation ARIADNE has created.

**LLOs Packaging:** LLOs packaging is the final and equal important step of the procedure described above because users can find the LLOs they are interested in by using keywords. Educational Learning Objects metadata approaches (EMD or LOM) can provide the best up-to-date wrappers. LOM generation can be achieved by using Metadata software tools based on the international standardisation initiatives as IEEE LTSC (<http://ltsc.ieee.org>), IMS (<http://www.imsproject.org>), ARIADNE (<http://www.ariadne-eu.org>) and CEN/ISSS (<http://www.cenorm.be/iss/Workshop/lt>). After issuing a query, XML description that fulfils the query can be downloaded for XML binding. We selected ARIADNE, which we were allowed to use free of charge, as it supports the creation of new metadata files, allows modification of existing LOM in terms of data, and is valid in terms of data values (Sampson et. al, 2002).

**LLOs Delivery:** LLOs delivery can happen in two ways by using:

- (i) *The Internet* preferably integrated in learning management systems. The latter could support blended learning requirements, coping with increased number of students, supporting communities of practice, sharing and re-using different kinds of educational material and collaborative work. The use of XML supports CLLOs delivery for mobile learning.
- (ii) *CD-ROMs*. Language learning units, sets and clusters as fixed lessons on CD-ROMs.

Having worked with the CLLO, the on/offline teacher can ask students to find information about the art object/objects in question (Peterson et al, 2003). It is students' responsibility now to conduct a research by using the clues given and submit their understanding in the online discussion group relevant to the specific CLLO. The findings of their research can be presented in the class on/offline, for example in the form of a written summary, and/or by making an oral presentation in the classroom about the cultural relevance of the art object/objects. According to Peterson et al (2003), these activities can serve for expanding the discussion about larger cultural, historical, and linguistic factors that tie with the art object /objects.

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## AN EXAMPLE OF CLLO

A prototype of a CLLO that refers to the agreement between adjectives and nouns in the neutral, first case singular is presented below. The CLLO is titled ‘The garland for the 1<sup>st</sup> of May’ (*Μαγιάτικο Στεφάνι*). The suggested level is for grade four in GLCs. This could be used in a learning management system, e.g. Claroline provided by the Greek University Network (GUNET, <http://eclass.gunet.gr>). In Figure 1 the interface provides the options of Agenda, Links, Documents, Video, Students' Exercises, Announcements, Users, Fori, Exercises, Groups, Online Chat, and the Description of the Course.

The *Learning Subject* is the Greek Grammar. The *Learning Unit* refers to the ‘adjectives’. The *Learning Set* is about the agreement between nouns and adjectives. According to Tsolakis (2000, p. 144), adjectives agree with nouns in gender, singular or plural and case. The *Learning Cluster* refers to the agreement between neutral nouns and adjectives. The *Learning Object* is about the agreement between the neutral nouns and adjectives in the nominative singular case.

The CLLO is tied with a specific tradition, which is common in Greece and Cyprus. Greek people celebrate the spring’s coming by making garlands from flowers on the 1<sup>st</sup> of May. They hang the garlands at the front doors of their homes. The purpose of doing this is to derive energy from nature. In addition, students are shown a painting by Apostolos Gerialis (1886-1983). The specific historical period and the influences of Western European art in Greek art can be also examined while students interpret the cultural context in which the artefact was made. In addition, the students can be engaged in activities that will introduce them to the traditions, which are celebrated on the 1<sup>st</sup> of May in Greece and Cyprus as well as to the grammatical phenomenon examined. Since students and teachers will be working in a blended learning environment, students can be asked to make a garland in their classrooms and search the Internet for relevant information. Moreover, they can be asked to find the significance of making garlands in other, past or present, cultures. The findings of the research can be published on the Internet and/or presented in the classroom.

The specific CLLO includes a small text for the tradition of the garland in the Greek language, the painting, an example of the grammatical phenomenon as well as two exercises for assessment.

### The text and exercises:

*Το Μαγιάτικο στεφάνι το φτιάχνουν οι νοικοκυρές την παραμονή της Πρωτομαγιάς. Πριν τη δύση του ήλιου το κρεμούν πάνω από την εξώπορτα. Με αυτόν τον τρόπο καλωσορίζουν την άνοιξη.*

*Την επόμενη μέρα, όλοι μαζί με τις οικογένειές τους πηγαίνουν στις εξοχές για να γιορτάσουν την Πρωτομαγιά.*

*Greek housewives make in the evening of 1<sup>st</sup> of May eve a garland from flowers. They hang them on their front doors. In this way they welcome spring.*

*The next day everybody along with his/her family goes to the country to celebrate the 1<sup>st</sup> of May.*

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**Άσκηση 1.** Βάζω τις καταλήξεις στα παρακάτω: (Exercise 1: Add the suffixes)  
 Το μαγιάτικο στεφάνι  
 Το πράσιν... πάρκο  
 Το άσπρ... περιστέρ...

**Άσκηση 2.** Βάζω τις καταλήξεις στα παρακάτω: (Exercise 2: Add the suffixes)  
 Το λουλούδι... στεφάν... που βάζουμε στην πόρτα του σπιτιού μας την Πρωτομαγιά καλωσορίζει την άνοιξη. Το κίτριν... λουλούδ... του Μάη, λέγεται μαγιολούλουδο στολίζει τα περισσότερα στεφάνια.

**Θέμα για συζήτηση:** Εσείς πώς γιορτάζετε την Πρωτομαγιά στον τόπο που μένετε; (Topic for Discussion: How do you celebrate the 1<sup>st</sup> of May in the country you live at the moment?)

Figure 1: The Garland of May, Apostolos Geralis, 1886 - 1983

<b>Περιοχές συζητήσεων</b> <u>Διαχείριση</u>
Περιοχή συζητήσεων
<b>ChatBot Sofia</b> Talk to a Robot in Greek it is currently under construction. it will be just a prototype and we will see whether it will work in 2004. from now a bot in english is available on <a href="http://nikilambropoulos.org">http://nikilambropoulos.org</a>
<b>Online Cafe</b> Introduction introducing ourselves Chat just for chatting
<b>Forum for specific problems in greek language</b> Γενικά προβλήματα / General, undefined problems Είναι περιοχή για γενικά μηνύματα που δεν μπορούν να κατηγοριοποιηθούν / This is the area for general problems that cannot be categorised Ρήματα / Verbs Προβλήματα που υπαρκούν για τη χρήση των ρημάτων / Problems regarding the use of verbs Ουσιαστικά / Nouns Προβλήματα με ουσιαστικά / Problems connected to nouns Άρθρα (ο, η, το) / Articles Προβλήματα με άρθρα / Problems connected to articles
<b>Group Forums</b> Group Forum 1 (επιβλέπων) Group Forum 2 (επιβλέπων)

Figure 2: Link for Discussion Fori

In figure 2 students and teachers' discussion about the Learning Object will be part of both areas of the nouns or the adjectives. The discussion fori are generated according to grammatical and structural phenomena. The use of wikis, chat and discussion fori is stressed as the provision of the immediate space of use.

## An example of the design of a CLLO

An example for designing a multimedia CLLO is made here by Macromedia FlashMX:

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## The garland of May

(Agreement Between Adjectives & Nouns  
in Neutral, Singular, Nominative case)



Greek housewives make in the evening of 1st of May eve a garland from flowers. They hang them on their front doors. In this way they welcome spring. The next day everybody along with his/her family goes to the country to celebrate the 1st of May.




Το **μαγιάτικο στεφάνι** το φτιάχνουν οι νοικοκυρές την παραμονή της Πρωτομαγιάς. Πριν τη δύση του ήλιου το κρεμούν πάνω από την εξώπορτα. Με αυτόν τον τρόπο καλωσορίζουν την άνοιξη. Την επόμενη μέρα, όλοι μαζί με τις οικογένειές τους πηγαίνουν στις εξοχές για να γιορτάσουν την Πρωτομαγιά.

This resource requires the Flash plug-in, which can be downloaded here 

Figure 3: Introductory page

A. Geralis (1886-1983)




**Agreement: neutral, adjective - noun, nominative case**

adjectives agree with nouns in gender, singular or plural and case

Το πράσιν     πάρκ

ΕΠΙΒΕΒΑΙΩΣΗ \* SUBMIT

- Το **μαγιάτικο στεφάνι** το φτιάχνουν οι γυναίκες την παραμονή της Πρωτομαγιάς.

 Discuss this topic

 **Το μαγιάτικο στεφάνι**

3/6

Figure 4: CLLO, Page 3

## 8. CONCLUDING REMARKS

The massive use of the Internet and computers has changed the way people communicate, work and learn in their everyday lives. Learning by using digital material in a self-directed and self-organised way as well as the interaction with the environment and participation and collaboration within virtual learning communities creates the brand new world of the 21<sup>st</sup> century. This chapter drew on theories based on these new complex parameters and sees culture as a factor that can enhance L2 learning. It appeared that in the Greek Diaspora in the UK, the majority of students who participated in the questionnaire survey research recognised the need for learning the culture of Greek language in a CALL communicative environment. Culture-based Language Learning Objects can cater for communicative language use, as well

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as the learning of the structures of a target L2 in mixed ability classes. CLLOs support students and teachers' online discussion about their design and construction and can identify the structure of important units. In addition, the online environment gives the opportunity to teachers to share and re-use the findings of the previous discussion/investigation and co-operate and collaborate for new CLLOs' production.

CLLOs design has focused on the fact that it is essential in terms of L2 learning that learners can work on the structure of the target language and the CLLO can be followed by a free language production stage. The combination of form and structure teaching with a free language production stage aims at the development of the learners' accuracy and fluency in the target language. Further development is required since this was the first attempt to construct Culture-based Language Learning Objects for teaching Greek as an L2. For the design and construction of LOs a systematic inquiry into students' needs and common difficulties in learning the target language is needed. In addition, the cooperation and collaboration for interaction design researchers, teachers, linguists, curriculum developers, artists, and multimedia designers is thought to be necessary for the production of high quality CLLOs.

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