Game for Learning English (GLE): The m-learning applied in the english language learning process

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ABSTRACT
Currently, people are experiencing a time of great changes and technological advances. This research was prepared given the importance of this open, dynamic and adaptive new educational scenario, allowing processes to occur at any time and any place, continuously, contextualized and integrated into everyday life of the learner. Thus, this paper aims to develop a learning object for teaching the English language accessed via mobile devices, in order to employ the mobile computing technologies in the teaching and learning process.

RESUMO
Atualmente, as pessoas estão passando por um momento de grandes mudanças e avanços tecnológicos. Esta pesquisa foi elaborada tendo em conta a importância deste novo cenário educacional aberto, dinâmico e adaptável, permitindo que os processos ocorram a qualquer hora e em qualquer lugar, de forma contínua, contextualizada e integrada na vida cotidiana do aluno. Assim, este trabalho tem como objetivo desenvolver um objeto de aprendizagem para o ensino do idioma inglês, acessado por meio de dispositivos móveis, a fim de empregar as tecnologias de computação móvel no processo de ensino e aprendizagem.

Categories and Subject Descriptors
D.3.3 [Programming Languages]: Language Constructs and Features – abstract data types, verification, education data mining.

General Terms
Management, Human Factors, Verification.

Palavras Chaves
M-learning, Hot Potatoes, English Language, Learning Object.

1. INTRODUCTION
The research topic of this paper presents the use of mobile devices in education, in other words, the focus about using mobile devices in education is concentrated on the impact possibilities of its use in the teaching and learning process, not about access itself, but the incorporation of this technology as a tool for teaching and learning. Analyzing these aspects and researches in progress in the area, it is concluded that the current computing scenario needs to evolve in support of ubiquity, now strengthened by the mobility of both the applications as apprentices [2].

Given the importance of this new open, dynamic and adaptive educational scenario that allows processes to occur at any time and place, continuously, contextualized and integrated into day by day of the learner, this learning object was designed. In this context the proposed research aims to develop learning software for English language teaching to be accessed via mobile devices, with the aim of applying the mobile computing technologies in the teaching and learning process. The topics explored are the following: section 2 presents the M-learning, section 3 describes the Computing in Education, ludic applied in the teaching of English language and the Hot Potatoes software. Section 4 describes the methodology. The Application developed and the results are presented in section 5. Section 6 discusses the concluding considerations and, finally, the references.

2. M-LEARNING
Learning processes are undergoing an important transition phase, since the different methods, techniques and paradigms applied and developed especially for education. In this context, advances in Information and Communications Technology (ICT) centered in mobility are transforming the way as the user interacts with technology [5]. The conjunction of technologies like intelligent interfaces, multimedia, wireless communication, high speed access to web data in one device is causing a large increase in use of mobility. This statement may be supplemented by [14], "not the
user adapts to the technology, but the technology adapts depending on the user.”

Mobile computing, in the context of learning, characterizes a new paradigm in education. Mobile Learning (M-Learning), M-Learning is an extension of E-Learning and is practiced through mobile devices such as mobile phones, smartphones, tablets allowing a better condition of access to educational resources, independent of time and place [11].

The authors [1] complement: “Its great potential is the use of mobile technology as part of an integrated learning model, characterized by the use of wireless communication devices, transparently and with high mobility” [1].

According to [2], “The mobile learning, from a pedagogic perspective, points to a new dimension in education by being able to meet immediate learning needs with great flexibility and interactivity” [2].

The teaching and learning process should be designed to allow an impeccable integration between technological tools and the actions of learning used in education.

3. COMPUTING IN EDUCATION

The advancement in technology directly influence the educational process by inserting a high level of interaction in educational activities which can be promoted by tools and mechanisms offered by computing platforms.

Some schools have already adopted the computer as a subject in curriculum, but separately from the others, with the thought that the disciplines shouldn’t be mixed, but computer must assists the traditional disciplines. Interdisciplinarity is a proposal to build the knowledge of all the traditional school subjects, by means of computer use in the classroom or m-learning with the use of appropriate educational software for each discipline.

According to [7]: “Currently, even with the growth of technology and cheapness of computing resources, schools and teachers have difficulties in integrating the whole new reality that technology can provide. There are tablets, netbooks, smartphones with reduced values that could be used as complements or even modify in a very complex way the process of teaching and learning”.

To the same extent as the technology grows, so too does the will of young people to meet innovations, so in many cases we have young people who do not like and cannot get a full turn within a classroom. They want to be in instant contact information, new technologies and the rapid and constant changes in the world.

With these new practices to combine computer science with education where the user is considered a “builder” of their own knowledge instead of just a “listener”, in a process where he does not sit in his class and just listen to the teacher explain. Computers can help in searching the knowledge around the entire World Wide Web, filtering what will help to absorb the content that is offered in the classroom and/or virtual learning environment.

3.1. The ludic applied in teaching English

When applying recreational activities in the classroom it is necessary to be aware that there is no possibility of giving a ready recipe, since the proposed activity will be involved with multiple social factors, which will vary according to the group. Then it is up to the teacher to adapt and change what is intended to teach. Thus, the articulation of his theory/practice will be entirely responsibility of the teacher. By proposing a playful activity he should examine the possibilities for use it in the classroom and also adopt criteria to analyze the educational value of the activities he wants to work with [4].

The development of the ludic aspect beyond facilitate learning, contributes to the personal, social and cultural development, collaborates to good mental health, prepares for a fertile inner state, facilitates the processes of socialization, communication, expression and consequently curiosity and the knowledge construction.

With ludic activities it is possible to teacher instigate students to seek answers and solutions to their questions and their needs and concerns related to learning [8].

According to [8]: “In foreign language teaching, linguistic knowledge is important because it supports the learner to interact with the texts. If the student ignores completely the vocabulary, the sounds of the language, the order in which words are organized in the statement, for example, he will have greater difficulty in understanding the texts” [8].

Thus, the teacher is responsible for improving the quality of the teaching and learning process, being his responsibility to develop new teaching practices that allow to students a greater learning, developing tasks that generate reflection and allows the student to take a more active role in way to allow him to take ownership of the information found in texts [13].

3.2. Hot Potatoes Software

The Hot Potatoes nonprofit and free software for use in educational institutions that create their exercises for Web Community use [12]. The program registration is necessary to obtain a “registration key” that allows you to create an unlimited number of questions within each application. Hot Potatoes is a six pack authoring tools or programs developed by Research and Development Center for Computing and Media Group, at the University of Victoria, in Canada.

According to [12], “The Hot Potatoes is a software that allows the production of six different types of interactive exercises, which are: multiple choice, open questions, order phrases, crossword, complete gaps and association. It is not a free program, but can be used for educational purposes at no charge.”

The great advantage of the Hot Potatoes is that the user doesn’t need to have knowledge about programming languages to use it. It is just to follow the guidelines given by the program automatically. This software allows the creation of interactive exercises for the Web. The pages created use JavaScript for interactivity, compatible with almost every browser available.

4. METHODOLOGY

The proposed work is grounded in a qualitative research format, because as [6], qualitative research answers to very specific questions, in other words it works with the universe of meanings, motives, aspirations, beliefs, values and attitudes. The quantitative research believes that everything can be measured, which means opinions can be translated into numbers and information to classifying and analyzing the aspects.

Activities are planned based on themes related to English language teaching with focus on elementary school.
The process was developed with the following steps: defining the subject to be exploited; literature research on the subject; selection of technological resources to be used; definition of learning objectives, design and presentation of the prototype implementation; development of conceptual and visual design, application deployment, reflection and analysis for the generation of theoretical knowledge.

For the development of learning object the following software features were used: Macromedia Dreamweaver MX, Macromedia Fireworks MX, JavaScript, PHP and HTML language programming. Regarding the hardware, Computers, Notebooks, Smartphone Samsung I9300 Galaxy S3 and iPhone simulator were used. Section 5 will present the developed application.

5. APPLICATION DEVELOPED

In this section are exposed results in educational ludic activities in the English language developed in the Hot Potatoes software. These activities cover topics related to colors, animals and numbers teaching. Thus, the exercises created are distributed in three tools (JMatch, JCross and JQuiz) of the program used. To illustrate, Figures 1, 2, 3 and 4 illustrate the application developed.

Figure 1 shows the learning object home screen. From this screen the user will access the proposed activities.

In Figure 2, we developed an exercise to JCross tool. This exercise is a crosswords, where the user will have to put the English translation of the name of the animal that will be displayed by clicking on the number.

Figure 2. J-Cross Activity

Figure 3. JQuiz Activity

Figure 4. JMatch Activity
Figure 3 presents the activity developed with JQuiz tool, where the user has to make choices. He has eleven questions related to colors names, as can be seen in the image.

Figure 4 illustrates a representation of the activity, which was developed using JMatch tool which allows studying with associations. The user, in this activity will work with their knowledge of numbers in English and have to decide how the correct translation of each number is.

5.1. Results

The system validation is based on a series of tests, in which the main objective is to test the computer-based system [9]. In tool validation the white box method was used, so the source code could be validated.

The white box test is to conduct conferences in code generally, in conditions and in the verification bonds conditions which requires knowledge of the structure of program implementation [3]. This test aims to verify the logical operation of the program verifying whether the program is in accordance with the client desire, but with its actual operation (Lewis, cited Beque 2009) . The following tests were applied: Basis Path Testing - is whether each statement of the system was performed at least once during the testing activities. Test Condition - based on checking all the logical conditions contained in the system, the common condition mistakes are incorrect Boolean operator, Boolean brackets; relational operator; arithmetic expression. Data Flow Test - takes into account the flow of information through variables throughout the program. Loops Test - we consider all the loops of the system with simulated inputs under all conditions of the loops, this validates all these factors.

6. CONCLUSION

This paper aims to develop a learning object to be accessed via mobile devices, in order to employ the mobile computing technologies in the teaching and learning process.

The study shows that the use of mobile devices in teaching and learning process is characterized as a promising possibility.

Considering the extent that technologies and services provided on the web and the fact of constantly evolution, virtual learning spaces need to be experienced, seeking to reduce the maximum transactional distance, enabling to develop learning events even with students and teachers interacting at different times and social spaces. Access to educational tools in a learning context with mobility will contribute to the interactions between students and teachers occur more intensively (quantitative gain) and contextualized or significant (qualitative gain).

Three educational ludic activities were described and developed as an educational resource and mediator of pedagogical practice and learning. It was found that a software such as Hot Potatoes, used to create playful exercises, enrich the teaching and learning of English. As future work we intend to apply the learning object to the primary students (first through fourth grade of elementary school) which will validate the tool performing user tests. With the results obtained, the final objective is to distribute the educational game free of charge.

7. REFERENCES