

## A Study On Interactivity In Computer Assisted Language Learning (CALL) Based For Learning Languages

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**Abstrak.** Pembelajaran bahasa terus ditingkatkan seiring dengan perkembangan teknologi. Computer Assisted Language Learning (CALL) adalah area penelitian yang berfokus pada pengembangan alat untuk meningkatkan proses pembelajaran bahasa. Jurnal ini bermaksud untuk mendiskusikan konten, interface dan sistem dari tiga game pembelajaran bahasa berbasis CALL dengan *3D gaming environment* untuk menemukan desain game pembelajaran berbasis CALL yang lebih baik. Untuk memahami konsep CALL lebih baik, penulis mencari dasar-dasar dari CALL, kemudian bergerak ke pembahasan tiga game berbasis CALL. Kombinasi dari teori CALL, pembahasan interface dan desain interaksi akan menghasilkan analisis masalah dari desain game berbasis CALL ini dan bagaimana caranya agar game-game pembelajaran tersebut bisa menjadi lebih baik lagi.

**Kata kunci:** *3d gaming environment*, computer assisted language learning, interface

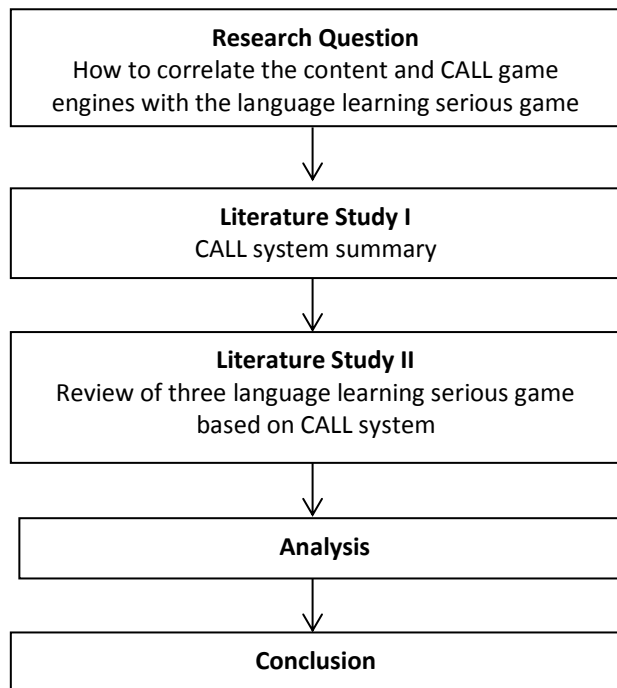
**Abstract.** Language learning tool is constantly being developed along with technology development. Computer Assisted Language Learning (CALL) is an area of research that is focused on tool development for upgrading the process of learning languages. This journal will discuss the content, interface and system from CALL education game with 3D gaming environment in order to find a better CALL game design. For understanding the CALL concept better, the writer seek for the base of CALL, then move onto the review of the three games. The combination from CALL theory, the discussion of interface and interaction design will result in the problem of the CALL game design and how to make those education games even better.

**Keywords:** *3d gaming environment*, computer assisted language learning, interface

## 1. Introduction

Serious game is a game which the goal is to be more than just entertainment. It is considered to be useful for the people who want to use simulation for exercises and education, one of the examples is flight simulation. Serious game in general uses game engines, a good tool for the development and the gameplay. (Rhyne & Sharrock, 2012). In this paper, we will be focusing on one of the aspects from three serious games CALL projects based on the exploration and the development of the game prototype for learning language; the correlation between the engines and overall CALL design. This paper will also analyze the content and overall game engines to find a better and effective interaction game design.

In short, the writer's thinking method is listed as written:



## **2. Computer Assistant Language Learning (CALL)**

Computer Assisted Language Learning (CALL) is often perceived, somewhat narrowly, as an approach to language teaching and learning in which the computer is used as an aid to the presentation, reinforcement and assessment of material to be learned, usually including a substantial interactive element. Levy (1997) defines CALL more succinctly and more broadly as "the search for and study of applications of the computer in language teaching and learning".

### **a. Traditional CALL**

Traditional CALL programs presented a stimulus to which the learner had to provide a response. In early CALL programs the stimulus was in the form of text presented on screen, and the only way in which the learner could respond was by entering an answer at the keyboard. Some programs were very imaginative in the way text was presented, making use of color to highlight grammatical features (e.g. gender in French and case endings in German) and movement to illustrate points of syntax (e.g. position of adjectives in French and subordinate clause word order in German). Discrete error analysis and feedback was a common feature of traditional CALL, and the more sophisticated programs would attempt to analyse the learner's response, pinpoint errors, and branch to help and remedial activities. However there is some alternative approach, like the use of Artificial Intelligence (AI) techniques to parse the learner's response – the so-called "intelligent CALL" (ICALL). (Matthews, 1994)

### **b. Communicative/Explorative CALL**

This kind of CALL uses concordance program dan focused on learner-centered approach. In this phase, which became prominent in the 1970s and 1980s, the computer continued to be used as a vehicle for practising language skills, but in a non-drill format and with a greater degree of student choice, control and interaction. (Warschauer& Healey, 1998)

### **c. Multimedia CALL**

This kind of CALL already combines the audio visual element, using video, sound and graphics in its creative presentation. (Fuerstenberg, 1993)

### **d. Web-based CALL**

This CALL combines all of the above, integrating CD-ROM and web, also audio and video in the web activity. (Felix, 2001)

### **3. Language Learning Games with CALL**

#### **a. REAP.PT**

REAP.PT is a game that is developed by Andre Silva et.al in 2012 for people who want to learn Portuguese. This game is in 3D and use CALL system. REAP.PT is an abbreviation from Reader Specific Practice. This game is using Natural Language Processing engine system. This system is focused on learning vocabulary, with entering the students' entire document with their vocabulary target.

REAP.PT is the product from porting the REAP system, which originally was made for English, into Portuguese. In this game, the students are given with lots of material to be learned, from the reading material, exercises and many more. The students can choose the level at their own.

For the interactive aspect that is personal, the students are allowed to choose the topic they want. It will be processed with REAP.PT and presented to the students. The documents that are presented are extracted from web, so students have access to varied and updated reading material.

In this research, the researcher said there are two new trends in its development. First are the set of exercises that is presented in game form. It focuses on grammar aspect, which always been a problem when learning Portuguese as a second language. Also, because of the exercises set that were extracted automatically from generating data on the internet, the generating design must be designed carefully to maintain the quality and the relevancy of the question. Moreover, the exercises should not suggest an ambiguous solution.

Secondly is the 3D game introduction for expressive learning, which means the spatial correlation between object and object manipulation. Although REAP.PT will be developed more, no steps in the written-based exercise is eliminated. The 3D environment opens a lot of possibilities from the exercises that can be made and the way it was presented to the students. This game has four written-based game; The Lexical Mahjong, The Right Mood, Nominal Determinants and Collective Nouns, and a 3D game called The Office at the end of the lesson.

This research is only until the first evaluation and half of the respondents said that this game was 'really good' in helping them learn. The researcher concludes that the 3D environment CALL system has a big potential on helping to learn Portuguese for students. Their learning motivation can be increased by the gamification of learning material and broader topic. However, this game should be developed from the interface and its 'friendliness' towards user, because some of the respondent feel some sort of confusion when they played it.

In this journal, the research did not have an age group focused as it ranged between 19-70 years old, and also their condition when they took the test. The writer felt that if the age group was crucial so that the whole design can be focused towards a certain age group. Moreover, this journal was not equipped with photos of the game

interface, making the writer unable to give an opinion on the visual aspect. (Silva et. al, 2012)

#### **b. I-FLEG**

I-FLEG is an interactive 3D virtual reality based on CALL for helping us learn French as a second language. The researcher said that I-FLEG is different from the other CALL software because I-FLEG it combines 3D technologies with sophisticated, natural language generation techniques for automatically producing learning material that is both varied and adapted to the current context. In addition, the game includes some basic scoring, error detection and error correction mechanisms which lay the basis for personalized feedback. And because it is web-based and relies on a database for permanent storage, it makes it easy to collect and analyze learner/game interactions. This game could be integrated with online game Second Life, in the Allegro Island part. In this game, for making it easier for the user, there is a storyline and the objects on the Island's 3D environment can be clicked and the user can type to interact with other user. (Amoia et.al, 2012)



**Picture 1 : The envirointment of I-FLEG**

**Source : I-FLEG game**



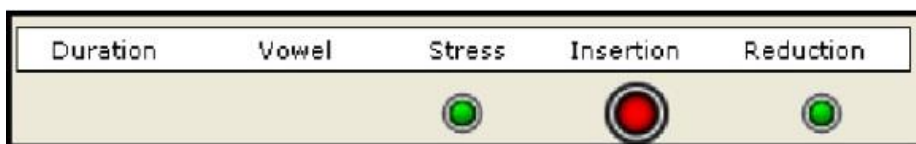
**Picture 2 : The envirointment of I-FLEG**

**Source : I-FLEG game**

### c. Ville and DEAL

Ville and DEAL are two different systems using embodied conversational agents (ECAs) for Swedish language learning developed by KTH University in Sweden. The first system, called Ville, is a virtual language teacher for vocabulary and pronunciation training. The second system, a dialogue system called DEAL, is a role-playing game for practicing conversational skills. Whereas DEAL acts as a conversational partner with the objective of creating and keeping an interesting dialogue, Ville takes the role of a teacher who guides, encourages and gives feedback to the students. (Wik & Hjalmarsson, 2009)

Ville has a lot of teaching chapters, from written-based chapter, pronunciation chapter and object introduction. Ville can also detect errors in pronunciation and told the students where they got the pronunciation wrong instantly, because the audio censor is quite sensitive. The feedback interface when the user trained the pronunciation was shown with a bar that includes “stress”, “insertion” and “reduction”.



**Picture 3** : Ville’s feedback interface

**Source** : Ville program

In DEAL, users can interact with a 3D character that is made to respond when the users talk. Users are also given a scenario and guided from the beginning until the end of lesson. The character that is given so far is a store employee, and his expression is made as human as possible when he has to respond with emotion.



**Picture 4** : The interface of DEAL

**Source : DEAL program**



**Picture 5 : The interface of DEAL**

**Source : DEAL program**

#### **4. Analysis**

From all the reviews the writer has done, to answer the research question, we found that most of them only listed 'satisfied' and 'helping them learn' as an answer for the detailed respondent response. Only the first research listed the satisfaction percent, so the correlation between the content and CALL game engines with the language learning serious game design still cannot be determined.

Even though all of the products are still ongoing, we can see that most of the product heavily focused on the interactive usability, the engine and its content, but still lacking in the interface design that is friendly enough for the users and the visual match of the overall design. It feels as if the researchers didn't think that the visual is not important enough to be added in their product. The writer feels thought that all of the product could be better with better visuals, as visual could make an emotional bond with the users. (McDonagh et.al, 2002)

Moreover, the visual could be one of the prominent factors for the user to use a product. From the visual itself, many things can be explored, for example, the ergonomic aspect. Also, visual could be explored to increase the satisfying experience when playing the game.

Also, the downsides of these researches are the lack of specific age group, as all seems to design to target for all ages. In function, of course this should be playable to

all ages, but the writer thought that with an age group, the design and content could be more focused, and the overall design could be centered better.

## 5. Conclusion

The rapid development of interactive serious games with CALL system has led to many products that use these systems and continuously pushing the boundaries of what is real and what is fiction. All of the interactivity is also being developed along with the addition of the content. From the respondents' perspective, most of them they feel these learning platforms are interesting and helpful for learning new languages, and they are quite satisfied with the results. However, after reviewing three games that uses the CALL system with different engines, we found that most of them ignoring the visual aspect and heavily focus on the usability.

Moreover, all of the journals are still ongoing, and the data result was still not detailed enough to put out a conclusion and analyze a new system, visual, content and engine for a better serious game based on CALL. The research question is still cannot be determined.

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