

Mobile Device Based Collaborative Language Learning & An Empirical Evaluation

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4.1 Mobile Device Based Collaborative Language Learning & An Empirical Evaluation

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Abstract

The idea of this game is to use a flashcard system to create a short story in a foreign language. The story is developed by a group of participants by exchanging sentences via a flashcard system. This way the participants can learn from each other by knowledge sharing without fear of making mistakes because the group members are anonymous. Moreover they do not need a constant support from a teacher.

Introduction

In this game a flashcard system is used to exchange dynamically generated flashcards among a group of people anonymously. The goal of the game is to improve language learning by creating a story within a group. The language learning game group work has an advantage over traditional group work. In a traditional group work some people does not want to participate because they are afraid of making mistakes. Anonymity of the participants of this game has solved this problem.

Background

The need for more and more people to learn different languages has never been higher. After a certain age it is not easy for most of the people to learn a new language since the responsible part of the brain for a new language acquisition become more fixed [1]. At any age learn-

ing a new language takes time and dedication [2]. After childhood, picking up additional languages becomes more academic and less organic [3]. So learners need an easy and interesting process or a tool to serve this purpose.

The use of mobile technology is increasing tremendously day by day. This game is to provide the user an easy and efficient way to improve their knowledge level of desired language by using a mobile phone only. This tool (language learning game) does not require any new technology.

The current prototype version is realised in the client side with HTML and AJAX. The server component consists of PHP and a MySQL database. The final version will be integrated in a Java EJB Flashcard system and the client will be implemented as a J2ME application. At the moment, the simplified prototype is used to evaluate the functionality and behaviour of the client as well as the server software. In this way it is relatively easy to modify the software in order to integrate or modify functionality proposed by the test groups.

Description of the game

Group members will be collected randomly. Each group should contain at least four to five members. They will be writing sentences and the aim is to build a short story in the desired language. When a group member will write and sent a sentence the other members of the group will have a chance to dispute by proposing another version of the sentence or they can simply agree. They are only allowed to change spelling or grammatical mistakes in their proposed version. Afterwards all group members

will receive a flashcard with the proposed sentence and possible corrected versions on the other side of the card. At this stage every group member has to decide at which version s/he agrees and vote for that one. The sentence with the most votes gets elected. In case of equal votes the first submitted one wins. Every group member has to create one sentence in one cycle. Generally the game is finished after three to four cycles. For example if the group contain five members and the story ends after four cycles then total number of sentences of that story will be twenty. The final short story is sent to all group members as well as to a supervisor who will perform an overall correction. After that all the participants will receive a flashcard with all the mistakes done by them while playing along with the correction made by the supervisor. This overall correction is necessary because there might be a situation when all the members of a group agree with a wrong sentence. At the end the received flash card, which will show the correction made by the supervisor will help them to learn correctly.

Description of the game states

This language learning game is designed in such a way that all the participants need to communicate with each other most frequently. The reason behind this communication is their improvement will be depending up on knowledge sharing among the group members and at the end among all the participants including the supervisor. As a result the game requires some activities from the participants and has some stages. The state diagram (Figure 4.1-1) will depict different states of the game along with the participants.

Wait State

After a successful sign-in procedure into the system, all the participants will be in wait state until the group has required number of participants.

Write State

When the group is full immediately afterwards the first enrolled participant will have the chance to write the first sentence of the story. Apart from that particular participant all the others are still in wait state until a written sentence has been submitted by the writer. Then the writer of the sentence will be in wait state while all the other participants will be in dispute state. In write state the writer is creating a flashcard.

Dispute State

In this stage of the game submitted sentence by the writer will be presented to all participants who are in dispute state. They will check for all sort of grammatical mistakes along with spelling mistake. After checking an individual participant may agree if he thinks the written sentence is correct. If he thinks there is any mistake he has the chance to make another proposal. By making another proposal participants are adding another side to the created flashcard by the writer [4].

Vote State

Apart from the written sentence if in dispute state any new proposal was made then all the participants of the group will go to the vote state. All the proposals will be presented in front of the participants to select the best one. Here they not only will check for the mistakes but also the suitability of a sentence for a story.

The sentence with most votes will be accepted as a part of the story. In case of equal vote first submitted one will be accepted by the system.

Test Results

Three prototype-tests, for two different languages (English and German) having 13 groups with on an average 3 members in each group, are already done. Mainly the web browser version of the game was offered. Participants' opinion along with corresponding language courses' professors has been collected as a form of questionnaire. Afterwards an empirical evaluation was done where

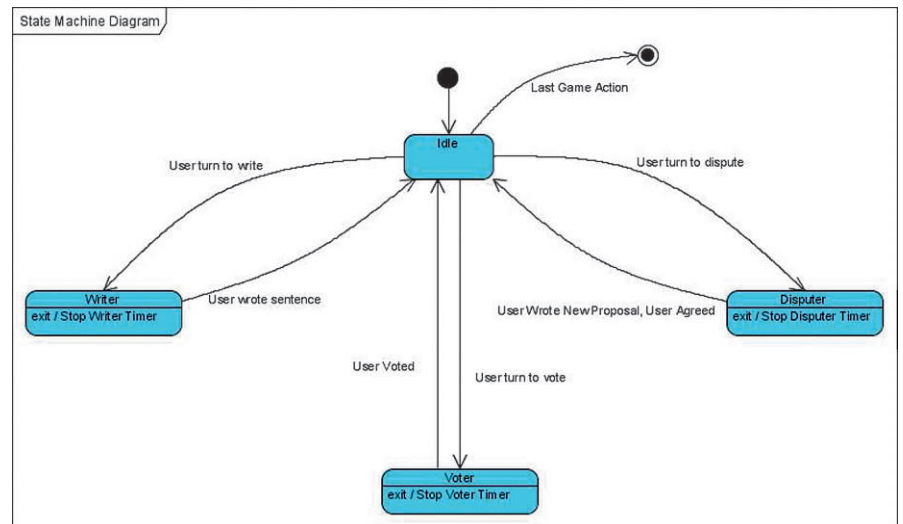


Fig: 4.1-1: State Machine diagram to show different states of the game and the participants

considered factors were

- How much did they like the game
- Do they think the game will be helpful to learn a new language?
- Whether they will play the game even if the game is offered as an optional exercise of their language course
- If they can imagine to play it by using their own mobile phone

With the help of the prototype all important functions and features were tested. Unfortunately one distracting point concerning the waiting time could not be tested. When the participants were playing this game by using desktop computers sitting in one room, they were “actively” waiting. Even though the group mates are anonymous, they knew that their group mates are sitting somewhere in the same room and one of them is writing and any second he will submit his sentence. It is very natural human behaviour that wait state feels much longer compare to an active state.

When the game will be played in mobile phones – none of the participants knows where the other group mates are, what are they doing, when a sentence will be submitted. We are expecting on that time the problem regarding wait state will be solved. This active wait state will become “passive” because participants will be notified when an action is required, for example write a sentence, vote for a sentence etc. So they may do

what ever they want, they do not need to wait constantly for the next action. Although the actual state of a participant in the game is “Wait” nobody will feel that. Instead they will have an impression like, they are in active state since everybody has a lot of other stuff to do in their daily life. Above all our findings based on the overall statistics of the game is very positive (Figure 4.1-2). Among all the participants

- 89 % liked the game,
- 92 % think this is helpful to learn a new language,
- 76 % were interested to play the game even if it is offered as an optional exercise of their language course, and
- 82 % can imagine this game to play by using mobile phone.

These are the most important points for the language learning game because at the end all the user will be using mobile phone only to play this game.

Conclusion

From each test we have learned some lessons, which are stated below:

- While writing and waiting it is important for the participants to see all the accepted sentences of the story and the instructions. It helps them to plan for the next sentence.
- While disputing and voting, to see all the accepted sentence of the story

along with instructions are also important to maintain the flow of the story and to select suitable sentence for the story. For example a submitted sentence individually could be correct in all sort of aspect but it would not be suitable for the story because the story so far is written in past tense but that sentence is in present tense.

- Participants want to see the complete story before and after the correction performed by the supervisor.
- Each group should consist of ≤ 5 members because the waiting time becomes too long for a participant of a large group.
- It is important to have a time out period for each state to avoid deadlock situation (when a participant can not or is not interested to response).

At the end it is necessary to have individual rewarding procedure along with Group rewarding to appreciate individual's better performance compare to group performance.

- All the submitted sentences should be saved along with the writer information and should be visible to him when ever he wants to see it, even if that sentence was not accepted or wrong. This will help the supervisor for individual rewarding and will help the participants to improve as well because learners learn more from their mistakes. [5]

From the statistics shown above (Figure 4.1-2), the most positive and important fact is, among all the participants almost everybody thought and felt this game will be a helpful tool to learn a new language. From the given answers of the provided questionnaire we know that they think it is a creative way to learn a new language because of the following reasons:

- They can practice the grammar and learn new vocabulary.
- Everybody can evaluate himself by comparing with the other group members.

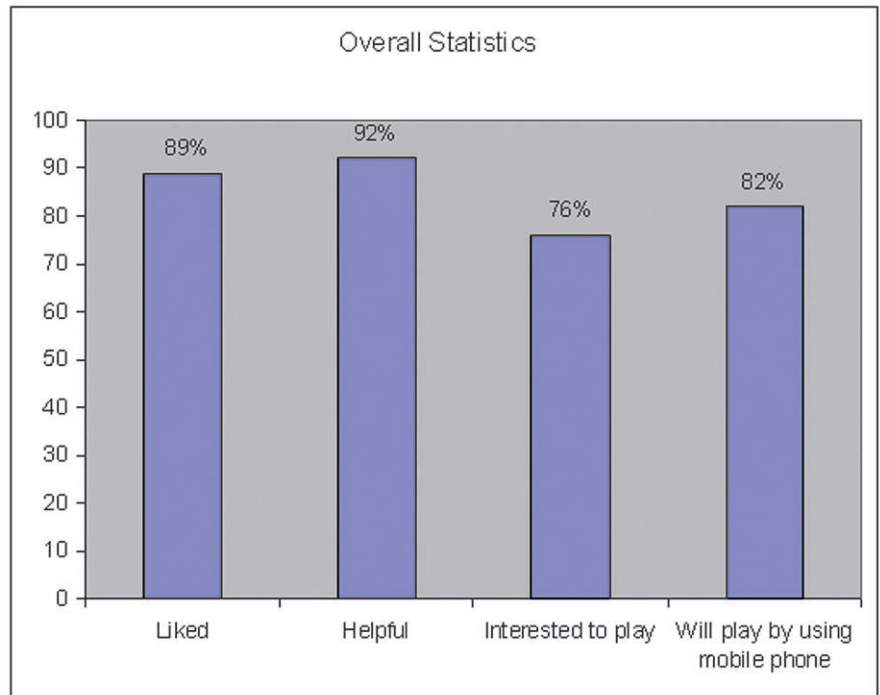


Fig. 4.1-1: State Machine diagram to show different states of the game and the participants

- This game is highly interactive which is very important to learn a new language.
- At the same time every body is a teacher and a student. This feeling was enjoyable for them and they became more careful while correcting and writing a sentence.
- They can write without fear of making mistake and nobody was feeling shy because they were playing anonymously.
- In the vote state every body can compare and then select the correct sentence.

This evaluation shows that the game has very positive consequences.

It is a team work and the other members of the team are Ms. Mitra Moslemi, Mr. Daniel Sachse, Mr. Luis Vargas Flores and Dr. Markus Feisst.

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