Implementation of the Scrabble Game on the Mobile Devices to Increase English Vocabulary Acquisition

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Abstract: The Scrabble Game redesigned on the mobile devices has been implemented. through this game to facilitate English vocabulary acquisition of the elementary school students with group collaborative and competitive learning activities. We reviewed literature related to collaborative, competition and language learning. Moreover, the concept of game design and its system architecture have been presented. It is expected that research findings in actual English learning contexts will further share in the near future.

Introduction

Collaborative learning (CL) focuses on active learners of knowledge, and emphasizes the learning process (Slavin, 1990) and learning outcomes. Students will enhance cognitive learning from memory through the interaction and coordination between groups (Zurita & Nussbaum, 2004). Face-to-face CL activities may probably come up with disagreement or different points of view, so group members need to cultivate abilities for communication and negotiation. The clash and stimulation between the groups would encourage students to work for good performances. In the process of CL, it can be more convenient by using mobile devices. Mobility has increased dramatically with the portability which conveniences interactions between members and enables immediately exchange of different thoughts with appropriate amendments and responses. In addition, a shared visual space is essential for collaborative activities because it facilitates grounding and communication (Kraut, Gergle, & Fussell, 2002). Studies (Inkpen, et al., 1995) show that compared with single-operator learning, the group collaboration learning would be a positive influence on performance of more effective cooperation for the achievement and joys. Good competitive interaction between groups is helpful to challenge learning task and enhance the sense of solving problems and joy.

Language and thinking are interrelated and affect one another. Language comprehension is relevant to vocabulary development abilities (Robert, 2003). The emphasis on language learning is meaningful to communication and applications (Carol, 2001). Accumulating vocabulary is one of the bases of language learning. It strains to memorize words; the effect is not only less fun but reducing learning motions. Therefore, the goal of this study is to take vocabulary learning by the group collaboration and competition model to inspire their motivation and learning achievement. The best strategy is discussing collaboratively. Crossword puzzle has generally been assigned for students' alternative self-Access activities and instruments by teachers and been considered and provided have appreciable potential. (Wise, 2001; Franklin et al., 2003; Jones, 2003). However, the traditional crossword puzzle restricts students' answers with the only one correct solution and is lack of interactivity in the class for group to discuss and learning collaboratively.

Generally, competition has always been regarded as a contrast of collaboration. However, the concept we propose in this game is to design a competition of the two group members which conducts them to correct, analyze, study, discuss and doubt each other's answer. In a competitive game-learning environment, students are motivated to make efforts to go for better performance (Chang, Yang, & Yu, 2003). This is the way we regard as an important part in CL. In this paper, based on the idea to improve crossword puzzle, we redesign the Scrabble game, a popular word game and board game in which 2 to 4 players score points by forming words from individual lettered tiles on a 15-by-15 game board. We redesigned the activity which students could build their own English vocabulary map especially through a competition model to encourage them accomplishing the motivational CL activity between groups. Furthermore, we implemented the activity by applied to portable device (especially to PDA) in an online collaborative learning environment based on Tuple Spaces system which was developed by SRI International. The

motivation of the game is not only to encourage students to memory much more vocabularies, but also try to make student analyze and doubt opponent's words through a competitive way. Students can view the other group's results through the PDA and compare with each other to learn more vocabularies through the game. We expect this game to raise students' motivation on English learning and discussion between groups.

Game Design

In simple terms, the Scrabble game is an English cooperative learning game and an activity designed through competition of building the vocabulary by two groups.
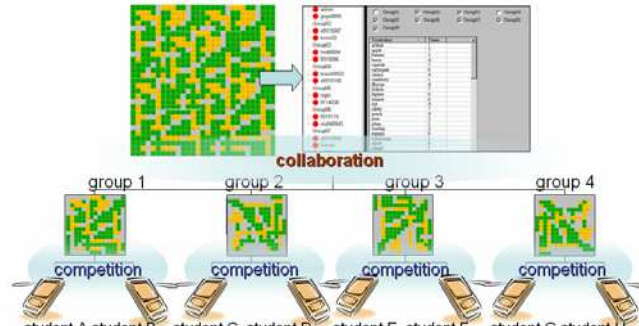

Figure 1. The Collaborative Mode of the Scrabble Game.

To win the game, participants of each group must try to fill in the vocabulary map and cover the opponent's letters with words separated by letters in each grid horizontally or vertically. Between group, students can analyze words oblong map which created up by the other groups. This game inspires participants to think, analyze, generalize and draw a conclusion map collecting the thoughts and the other group in a systematic manner.

The game is proceeding as following steps:

1. Prior to the game, the teacher can assign the theme of each round (food, transportation, travel, etc.) and put one or more than one character. Each character should put in each grid.
2. Students in the same group take turns to put word which related with the theme vertically or horizontally in the map to cover the exited letter or letters in the map. If you cover opponent's letter, you get the gird of letter.
3. Students take turns to build up the map with word will be restricted in few seconds which controlled by teacher. Student not building in time will lose the opportunity to answer at once and be changed by opponent.
4. Students criticize and doubt of the opponent's word if the word dose not fit the theme.
5. In the limited time and range, the one who gets the more grids than the other wins the game.

System architecture and implementation

The student client interface was divided into the map, letter area, input area and indication area. Students can input word into the input area by hit the letters in the letter area. Then students can select the word direction (vertical/horizontal) in the input area. The word can be drag to the suitable location on map areas. In indication area will show information about the two sides scores, each of the remaining time. When feeling puzzle with opponent's word, students can propose doubt by pressing the question button in the indication area.

Figure 2. the Scrabble Game Client Interface

Teacher client interface was divided into group area and data analysis area. In group area, teachers can divide students into groups. In data analysis area, teacher can concern the situation and result of each group while the activity is processing or over, and teacher can collect all the vocabulary results of all groups in a table and share to each student's client screen to share the experience of the game to. The system also can track the progress of participants and offer the data to teachers for use of students' vocabulary research.

Further Work

In this paper, the new concept "collaboration" between members and groups has been introduced. Whereas current system in progress is based on system and activity feedback, we believe that this concept will yield some significant findings and well appreciated by the students.

To be further explored, further and more particular investigation is needed to evaluate how the Scrabble game changes affect students' learning process and how to achieve its anticipated capabilities and facilitate students' learning effective compared with the other traditional English learning activity. Furthermore, this conception could be implemented by more games and activities in collaborative learning to raise students' motivation to study English and discussion between groups. Finally, through the Scrabble game to encourage students' motivation of learning, we could implement more application focused on active learning and self-regulatory activity of group.

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