

Web-based Conversation Quest for Enhancing English Speaking Skills

Cheng-Ting CHEN^{a*}, Maiga CHANG^b, Kuan-Hsing WU^c & Pei-Shan YU^c

^a*Department of Applied Linguistics and Language Studies, Chung Yuan Christian University, Taiwan*

^b*School of Computing Information and Systems, Athabasca University, Canada & Smart Informatics Ltd., Canada*

^c*Department of Information Management, Chung Yuan Christian University, Taiwan*

*ting@cycu.edu.tw

Abstract: In this paper, a Conversation Quest in the educational game platform MEGA World v2.1, for English learners to practice their speaking skill is introduced. The system is designed specifically for assisting English learners to cultivate their speaking proficiency. Providing a non-threatening environment with goal-oriented tasks, learners are invited to join a game with scaffold speaking tasks. Based on Vygotsky's socio-cultural theory, social interaction is a key element for improving language acquisition and speech fluency. It is believed that English learners would improve their communicating skills of using the target language while interacting with native English speakers because they can provide support or authentic language usage examples for learners through scaffolding structures like modeling, repetition, or linguistic simplification. In reality, however, a native English speaker may not be available for all English learners, so the Conversation Quest in MEGA World v2.1 is designed and developed to provide learners with simulated conversation scenarios.

Keywords: English learner, speaking proficiency, socio-cultural theory, interaction, MEGA World

1. Introduction

Among the four language skills, speaking, listening, reading and writing, speaking is considered the riskiest one to cause embarrassment or humiliation for second and foreign language learners (ESLs & EFLs), especially in a language learning classroom setting. (Kessler, 2010) Some students did not recognize the difficulties of speaking until they have to face the real situations using the target language. According to the conversations with the researcher's students, speaking in real world could cause the greatest anxiety for language learners due to the following reasons: not enough reaction time to plan what one wants to say, no time to revise or self-correct, no time to check dictionary for better understanding (of what they have heard) or for what phrases or words they could use to express their minds, no time to organize their thoughts. Hence, many language learners seek authentic opportunities to practice speaking with native or more advanced English speakers.

In many Multiplayer Online Role Playing Games (MORPGs), it is common to see players having conversation with another game character, either controlled by another player or a NPC (Non-Player Character). Since players are from different countries, English is one of the most popular languages for online game players to communicate with one another or with the NPC. Some students, whose first language is not English, even claimed that they could practice English conversation by playing online games (Jason et al. personal communication). However, this type of random conversations may contain certain problems. For example, misunderstand the real usage of certain words or phrases, and overuse the abbreviations.

A commonly used term "GG" is a good example for both problems. For native English speakers, "GG" is just an Internet acronym for "Good Game," which is a phrase people usually say right after a basketball game or similar competitive events to show good sportsmanship. In Taiwan, however, the meaning of "GG" has been transformed as "game over" since certain non-native

English speaking players always see it when the game is over. Thus, some people started to say, “I am GG!” referring to “I am doomed!”

Seeing so many students untirelessly emerged in playing online games, it is expected to keep the fun for the students, and also transmit the fun into language learning and practicing process. At the same time, in order to avoid the abovementioned problems, a systematically designed conversation program is considered to be a possible solution for providing students a game-based, and non-threatening environment to practice English speaking in a fun manner.

2. Literature Review

2.1 Social Interaction and Language Learning

In second language acquisition (SLA) field, some scholars are deemed as “social interactionist,” who believe social interaction is essential for second language learners to construct their second language (or foreign language) abilities. Among the social interactionists, Gass (2002) proposed that “how learners use their linguistic environment (in particular, conversational interactions) to build their knowledge of the second language.” It is correspondent with Vygotsky’s sociocultural theory, which emphasis on the role of social environment (Vygotsky, 1962).

As another interactionist, Swain (1990) believes that meaningful conversations is helpful and necessary for successful SLA. Based on the concept, Long (1996) proposed the Interaction Hypothesis which indicates that interaction facilitates second language learning because various linguistic modifications occurred in the conversation become valuable linguistic input for learner to internalize the structure and common usage of the target language. Muho & Kurani (2014) also conclude with the following statement in their study regarding the role of interaction in SLA, “If we are to claim that our language learning is meaningful, it should be embedded in conversation.”

In short, interactionists advocate incorporating social interactions into second/foreign language learning, and promote similar environment for language learners in order to assist them to advance more efficiently. Since providing the authentic environment with native English speakers as real conversation partners is not easy or realistic for many circumstances, creating simulated conversation environment and scenarios in an online game setting will be more feasible.

2.2 Task-Based Learning

In many multiplayer online role playing games (MORPGs), an effective way to keep players engaged is providing different levels of quests for learners to solve the problems and gain points correspondently, which is called quest-based contextualization process (QBCP) (Lu, Luo, Chang, Kuo & Li, 2018). This process is similar to a popular CALL (computer assisted language learning) method: task-based learning (TBL). No matter which term to be used, it is undeniable that tasks with specific goals are usually key elements to elicit learner’s motivation and to prolong their persistence in the game-playing or learning process. When applying TBL in language teaching, seven stages are suggested by Long (1997):

1. Task-based needs analysis to identify target tasks.
2. Classify into target task types.
3. Derive pedagogic tasks.
4. Sequence to form a task-based syllabus.
5. Implement with appropriate methodology and pedagogy.
6. Assess with task-based, criterion-referenced, performance tests.
7. Evaluate program

Therefore, this project also follows the sequence to create meaning conversation scenarios, which are classified into different task types. Pedagogic tasks will also be derived next, and a task-based syllabus will be formed as well. During the evaluation stage, students will be assessed not only with task-based objectives, but also with their performance tests. More detailed descriptions can be found in Section 4, the Evaluation Plan section.

2.3 Studies on English Speaking of Computer Assisted Language Learning

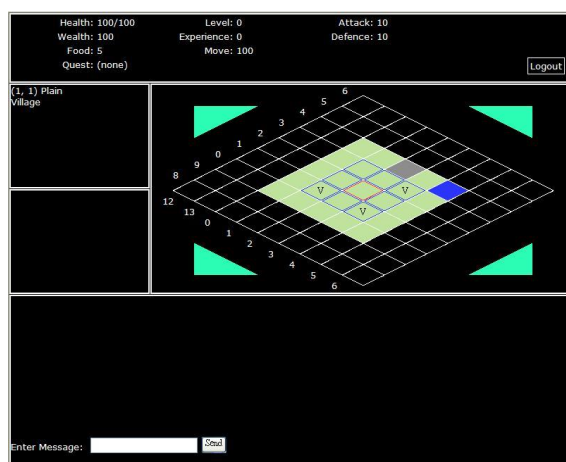
Since most English learners whose official language is not English usually do not have ample opportunities to interact with others using the target language (English) in an authentic condition, especially for English as a foreign language (EFL) learners. Scholars and educators began to see some lights while computer assisted language learning (CALL) became popular. With the rapid development of computer-related device and the widespread Internet coverage, new opportunities and new methods are booming in language learning field (Morton & Jack, 2010).

According to previous research, many language learners prefer to join CALL activities due to the low-anxiety, non-threatening environment and self-paced learning speed. When facing a computer, not a real person (either teacher or peer), learners have more courage to produce the target language, and they are less afraid of making mistakes (Chen, 2008; Hauglie, 2000; Morton & Jack, 2010). Therefore, researchers have created various CALL programs for assisting language learners to increase practicing opportunities. Morton and Jack (2010) evaluated a CALL program, SPELL, which provides animated agent in animated scenes to converse with learners' avatars. Similar to SPELL, input from the player is required in the conversation process for the dialogue to continue in Conversation Quest in MEGA World v2.1, and whatever the player says will affect the rest of the conversation.

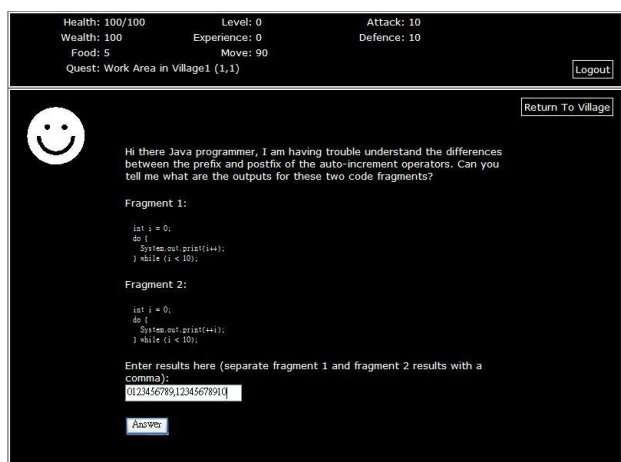
3. Conversation Quest in MEGA World v2.1

3.1 MEGA World

MEGA World is a web-based multiplayer educational game originally developed by Maiga Chang and Kinshuk, two renowned professors in game-based learning field, during their one-year research project from December 2008 to November 2009 as Figure 1 shows (Chang & Kinshuk, 2010). The term 'MEGA' refers to Multiplayer Educational Game for Assessment, so the major goal of the game is for "assessing students' knowledge and skills in particular learning domains," for example, Java programming.



(a) chessboard-like game world



(b) a Java programming quest

Figure 1. The original MEGA World (v1.0) in 2010

In MEGA World, students can create their own avatars to travel around the virtual world. They will meet with non-player controlled characters (NPCs) who deliver different quests, the tasks or assignments for players to challenge or complete. MEGA World currently has seven types of quests include greeting, item collection and delivery, sorting, treasure hunting and digging, calculation, fill-in-the-blank, and short answer quest type (Li, Zou, Xie, Wang, & Chang, 2018). For moving on to the next stage, students will need to solve the problems or complete the tasks with or without time limitation. Ideally, with the game-related characteristics of multiplayer role-playing

game, students should enjoy more during the process of doing their homework or exercises as playing in a game. This research adopts and designs conversation quest on MEGA World v2.1 (see Figure 2).

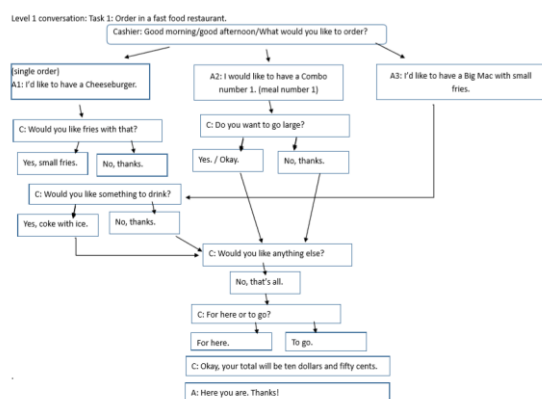


Figure 2. MEGA World v2.1

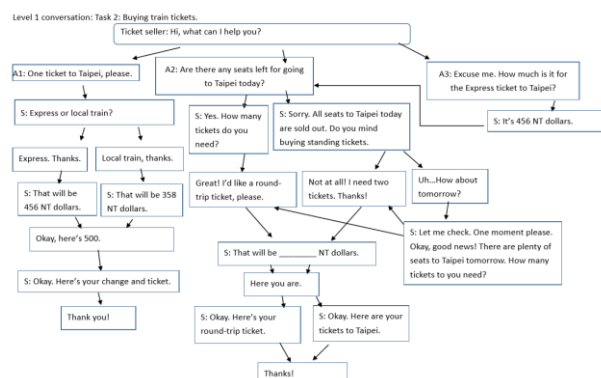
3.2 Conversation Tree

For designing a practical and meaningful conversation system, a variety of conversation trees were built up by the research team with consultants from professional English instructors. Various types of topics are included, for instance, Food, Lodging, Transportation, Shopping, Entertainment, School life, Sports, and the like.

Figure 3 shows two samples of the conversation trees created specifically for the Conversation Quest in MEGA World v2.1. The one on the left is for ordering in a fast food restaurant, and the one on the right is for buying train tickets. As shown in Figure 3, after hearing the first question from a non-player character (NPC) in a dialogue, learners are allowed, and actually encouraged to answer differently just like in an authentic conversation scenario. With the pre-designed conversation trees, the NPC will be able to continue the conversation as a real person based on the player's response. Therefore, according to the replying sentences from the player, the conversation may lead to the same result (e.g., complete the order and successfully get the food), or different results (e.g., bought a single trip ticket, multiple tickets, or round trip tickets).



(a) complete an order in a fast food restaurant



(b) bought a ticket at train station

Figure 3. Conversation Trees for Conversation Quest in MEGA World.

Once the conversation tree structure is confirmed, the research team started to build up the system. One graduate student and one undergraduate student from the Department of Information Management of Chung Yuan Christian University are recruited for designing the system under the guidance of Smart Informatics Ltd., the sponsor of MEGA World.

3.3 Conversation Quest Design-Teacher Interface

Both of teachers and students can use the system and can be redirected to from the landing page, as shown in Figure 4.

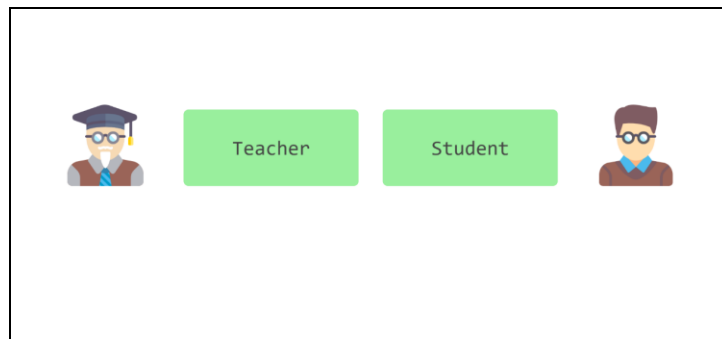
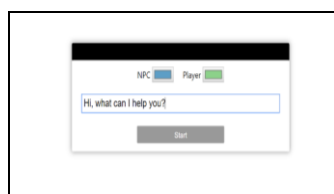


Figure 4. Landing Page of Conversation Quest Management System.

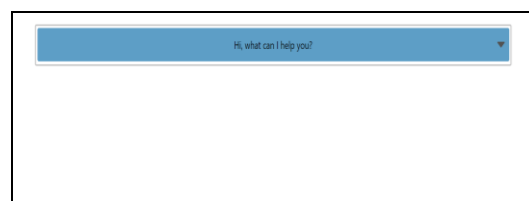
In addition to the pre-designed conversation trees, all teacher users can create their own conversation trees based on their own interests or their teaching content on the syllabus. To begin with, a teacher just needs to enter the topic and title for a new conversation as Figure 5 shows, and then s/he could choose to identify the difficulty levels or not. If the small box for ‘Setting difficulty to the conversation’ is not checked, the system will assign a level for the conversation based on the number of layers in the conversation tree design.

Figure 5. Create a new conversation tree.

Figure 6 shows the first step for creating your own conversation tree. As shown in Figure 6(a), the teacher can choose his/her preferred colors to indicate the sentences’ ownership (i.e., NPC or player). Once the first sentence (usually a question) has been added, the question will appear on teacher’s screen in a box in the preferred color selected by the teacher earlier.



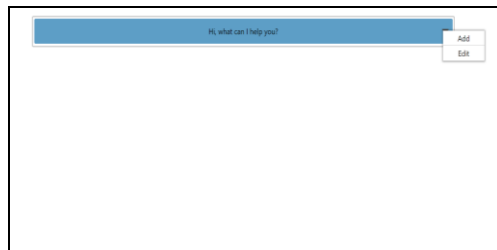
(a) create the first question of a conversation tree



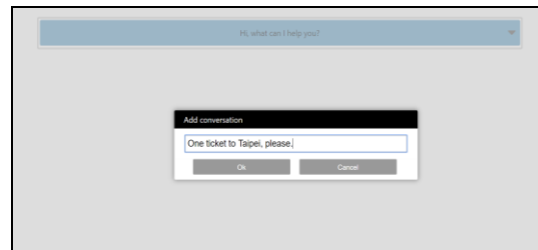
(b) the question shown in a box in preferred color

Figure 6. Key in the first question.

From this step on, the teacher can choose ‘Add’ or ‘Edit’ using the drop-down menu on the right corner of the first sentence/box (as shown in the screenshot at left-hand side of Figure 5). If the teacher chooses ‘edit,’ s/he can edit the existing sentence. If the teacher chooses ‘add,’ s/he can add a sentence/box under the existing sentence. For a question that NPC has for the students, teachers can ‘add’ more than one responses showing in different boxes. So far, the system did not set a limitation for adding following sentences/boxes, but it may become difficult to read on the screen when there are too many boxes. Also, it will take much longer time for teachers to design a complete conversation tree.



(a) Add/Edit function for existing sentence/box



(b) Add a potential response that students may say

Figure 7. Build a conversation tree from first sentence.

After the first sentence, teachers may find one more function in the drop-down menu: ‘delete.’ As for all the boxes located at the bottom layer, teacher can find another useful function ‘connect,’ as shown in Figure 6. By using the ‘connect’ function, the system can clone a stream of conversation from existing boxes. For example, after certain decision making process, the new response in the third column may trigger an existing NPC question in the first or the second column. Therefore, teacher users merely need to click ‘connect,’ and then an existing NPC question to bring the following conversation to the third column.

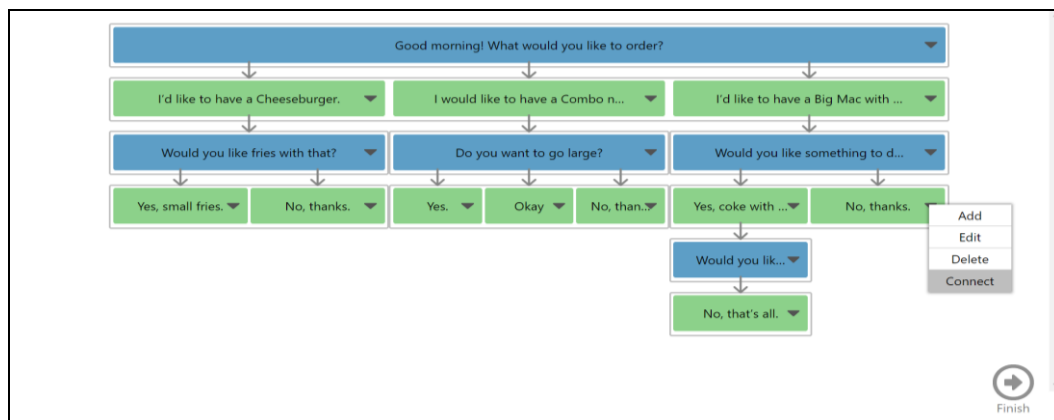


Figure 8. Additional two function, Delete and Connect, for an existing conversation.

If the teacher as well as the conversation designer needs to delete a certain sentence/box, s/he merely needs to choose ‘delete’ from the drop-down menu of particular sentence. Since the deleted sentences will not be able to be retrieved or recovered, a confirmation message would pop out to ask the user whether s/he really want to delete something or not (see Figure 7).



Figure 9. Confirming message for deleting an existing sentence/box

Before students can practice their speaking skill, the teacher needs to create a NPC and associate the NPC to a particular conversation tree s/he created earlier. Figure 8 shows an easy 2-step process for creating an NPC: (1) entering a name for the NPC and (2) choosing any pre-created conversation stored in the system.

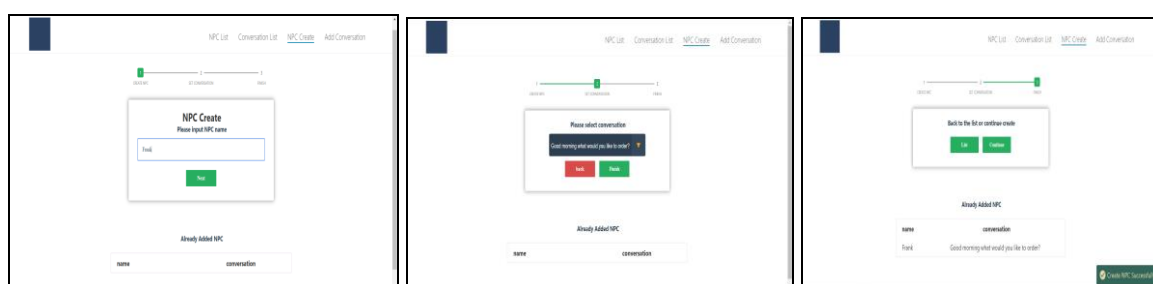


Figure 10. Add a new NPC and associate it to a pre-created conversation tree.

3.4 Conversation Quest Design-Student Interface

If a user chooses to enter as a student, s/he can select a NPC first, and then the conversation task will start right away. Different from most commonly seen conversation method in MORPGs, players cannot 'type' what they want to say. They can only click on the microphone icon (as shown at the bottom center of Figure 9), and start talking. The utterance will be converted into text message using modified online speech recognition program.

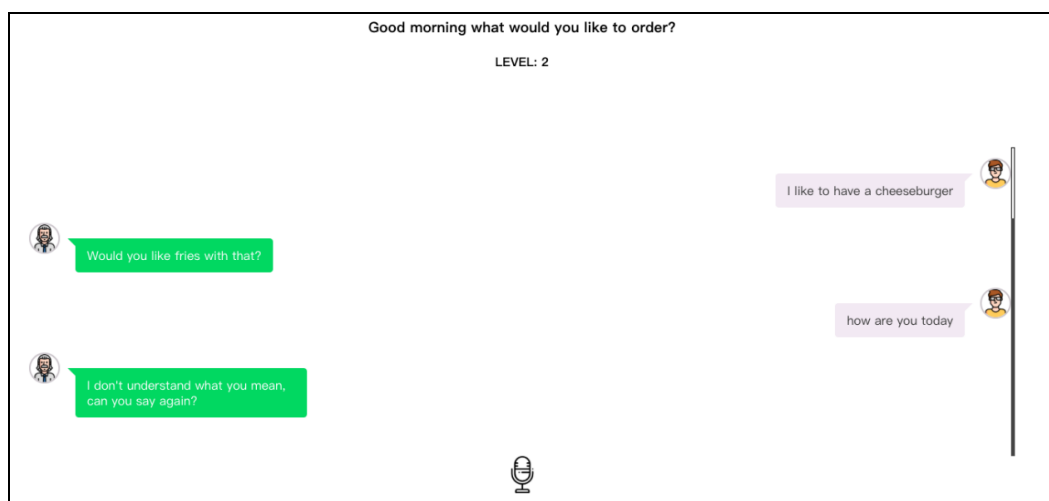


Figure 11. Student Interface: Conversation Status

The program has been tested effectively for latest version of major browsers, including Google Chrome, Firefox, Apple Safari, Internet Explorer and Microsoft Edge. One key element of the speech-to-text program is that it can recognize the speech based on keywords used by the player, and thereby generate the complete sentence into text form to show the player the accurate usage.

Based on the systematically designed conversation trees, the NPC will respond in real time according to the player's responses.

If the player does not answer within 10 seconds, the NPC will repeat the question again. If the player provides inappropriate answers, the NPC will ask the player to answer again in a polite manner. Take the conversation from Figure 10 as an example. Once the player answered "How are you today" after NPC's question, "Would you like some fries to go with that," the NPC will respond, "Sorry! I don't understand what you mean. Could you please say again?" In short, no response or errors will both prompt the NPC to direct the player back to the conversation scenario.

If the player fails to provide logical responses for more than three times, the NPC will end the conversation with a 'force end' sentence. The 'force end' sentence can also be edited by teachers or selected from the system. As to the game points system, teachers do not have to assign points, while the system will determine the points based on the completeness of the conversation, and the number of layers the player have accomplished.

4. Evaluation Plan

In order to evaluate the effectiveness and practicality of the game, the researchers will conduct a quasi-experiment research design in Fall 2018. EFL (English as a foreign language) learners will be recruited from English Speaking and Listening courses of a private University in northern Taiwan. The game will be introduced to the participants near the beginning of the semester. Before the introduction, participants will fill out a brief demographic questionnaire regarding their CALL (computer assisted language learning) experience.

During the semester, participants will be invited to play the game as frequently as possible, or at least once per week. Participants' English oral proficiency related with the game content will be evaluated by the course instructor by the end of the experiment. Moreover, another questionnaire will be given to the participants for exploring their attitude and reflection about the game.

The data will be collected and analyzed for improving the game as well as for identifying how effective and useful the game is considered from EFL learners' perspective. Simultaneously, the in-game data regarding the frequency of playing the game, the game points earned by each participant, and the types of dialogues been chosen for practicing during the experiment will also be collected, analyzed, and compared with participants' actual oral exam scores and survey results.

5. Conclusion

Originally, social interactions in MORPGs are for players to seek guidance, support and assistance in order to complete the game or win a battle. As more and more people engaged in MORPGs, the types of conversations in the games varied. Some players consider their online game friends are sincerer and 'more real' than their friends in reality. Some players even found their romance based on the social interaction opportunities in MORPGs (Bennerstedt, 2007). The intriguing elements of online games and social interactions keep attracting people, including many students, into the virtual world. Therefore, educators in the modern era should take advantage of this trend, instead of merely criticizing the ever changing society and the new-era phenomenon. As to the developing system, Conversation Quest in MEGA World v2.1, more functions are yet to be created, and the design may be polished as well. Nevertheless, it cherished the value of online social interactions and further applied the advantages into language learning field. Future development of the game and further research plans related with similar context should worth anticipating.

Acknowledgements

The authors acknowledge the support of Chung Yuan Christian University and Smart Informatics Ltd., Canada.

References

- Ariza, E. N. & Hancock, S. (2003). Second language acquisition theories as a framework for creating distance learning courses. *International Review of Research in Open and Distance Learning*, Retrieved on August 3, 2018 from: <http://www.irrodl.org/index.php/irrodl/article%20/view/142/222>.
- Bennerstedt, U. (2007). Avatars & interaction in gaming: Dysfunctional interaction or a practice of players. *Game in Action*, Retrieved on Aug. 12 from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.524.8766&rep=rep1&type=pdf>
- Chang, M., & Kinshuk. (2010). Web-based Multiplayer Online Role Playing Game (MORPG) for Assessing Students' Java Programming Knowledge and Skills. *Proceedings of 2010 Third IEEE International Conference on Digital Game and Intelligent Toy Enhanced Learning* (pp. 103-107). Kaohsiung, Taiwan.
- Chen, C-T. (2008). The effectiveness of incorporating the Internet to improve literacy skills of English language learners. Doctoral Dissertation. University of Louisville.
- Gass, S. (2002). An interactionist perspective on second language acquisition. In R. Kaplan (Ed.), *The Oxford handbook of applied linguistics*, 170-181. Oxford: Oxford University Press.
- Hauglie, J. W. (2000). Language at work: computer-mediated communication and the adult second language learner. Dissertation Abstracts International, A: The Humanities and Social Sciences, 60(9), 3295-A
- Kessler, G. (2010). Fluency and anxiety in self-access speaking tasks: The influence of environment. *Computer Assisted Language Learning*, 23(4). 361-375.
- Li, Z., Zou, D., Xie, H., Wang, F.-L., & Chang, M. (2018). Enhancing Information Literacy in Hong Kong Higher Education through Game-based Learning. In the Proceedings of 22nd Global Chinese Conference on Computers in Education (GCCCE 2018), Guangzhou, China, May 25-29, 2018, 595-598.
- Long, M. H. (1996). The Role of the Linguistic Environment in Second Language Acquisition. In Ritchie, William; Bhatia, Tej. *Handbook of second language acquisition*. San Diego: Academic Press. pp. 413-468
- Long, M. H. (1997). Focus on form in Task-Based Language Teaching. Retrieved on Aug. 10 from https://woucentral.weebly.com/uploads/7/4/6/9/7469707/long_1997_intro_focus_on_form.pdf
- Lu, Z-X., Luo, X., Chang, M., Kuo, R., & Li, K-C. (2018). Role Playing Game Quest Design in Multiplayer Educational Game. *Proceedings of the 22nd Global Chinese Conference on Computers in Education* (pp. 680-688). Guangzhou, China.
- Malone, S. (2012). Theories and Research of Second Language Acquisition. Reading for Day 2, Topic 2LA Theories. Bangkok.
- Morton, H. & Jack, M. (2010). Speech interactive computer-assisted language learning: a cross-cultural evaluation. *Computer Assisted Language Learning*. 23(4). 295-319.
- Muho, A. & Kurani, A. (2014). The role of interaction in second language acquisition. *European Scientific Journal*, 16, 44-54.
- Pica, T. (1996). Second Language Learning Through Interaction: Multiple Perspectives. *Working Papers in Educational Linguistics*, 12 (1), 1-22
- Swain (2011). Sociocultural theory in second language education: An introduction through narratives. *Multilingual Matters*.
- Vygotsky, L. (1962). *Thought and language*. Cambridge, MA: MIT Press.