

Research/Project Concept Paper:

Combining Speech Recognition and Created Realities VXInteractive™ System to Create Authentic Spoken Language Learning.

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Goal:

The goal of this project is to create an Internet based Japanese Spoken Language learning system that would provide more interactive and motivating learning than current multimedia and audiotape-based systems. The initial focus will be on one language, but other languages could be supported after the initial development to increase the repository of spoken language learning available.

Overview:

Current approaches to foreign language pedagogy stress the importance of a communicative method of language learning, in which the learner must successfully accomplish tasks by using culturally appropriate language in authentic contexts. In this method, it is traditionally the instructor in the classroom who creates a simulated context in which they elicit appropriate language from the learner and evaluate it. Although there have been increased calls for using multimedia in foreign language teaching, the products that have appeared to date are at best only supplements to the classroom, and provide the learner with additional information about the target language or culture or further practice in only a limited aspect of the spoken language. Clearly there is a need for a spoken language learning system that is communicative, supports a variety of styles of distributed learning, and is truly interactive.

The Created Realities approach using their VXInteractive system would create contextually accurate references or motifs for the students to be immersed in, then overlay spoken language training with audio feedback and couple that with speech recognition to determine if the student has accurately said the studied language items. This system would provide a powerful mastery-learning situation for the student. In addition, the system would also be able to support collaborative free-form spoken dialogue between students on-line at the same time.

Example:

We envision that the spoken language learning system will ultimately support a number of different learning styles. Here, we discuss how our system will work for a learner who is studying Japanese in a distance learning setting and never enters a traditional classroom. The registered learner will log on to the system and enter the scenario that corresponds to the lesson they are currently studying, for example, a shopping scenario at a supermarket. The goal of the scenario is for the student to pass through a number of verbal exchanges with the computer generated shopkeeper (avatar) with as much ease as they can. If the learner's utterances are determined incorrect by the system, they will hear the correct utterance that the learner will repeat until correct. Once the learner correctly produces the utterance, the learner moves on to the next part of the scenario. The learner is able to repeat the scenario in the practice phase of the lesson until they feel confident enough to perform the conversation in the graded phase. In the graded phase, the evaluation could be done by the system or by an instructor. Once the learner has successfully completed the task of a scenario, they can continue further into the course work.

The Technology Approach:

We are researching potential solutions for speech recognition technology that would be appropriate to our concept. Speech systems that require a library of spoken information to be assembled by a user already familiar with the spoken language are not acceptable for this project. The required speech system must support existing libraries or be able to be configured so that it can support the limited vocabulary and phrases of the spoken language instruction of the environments.

Figure 1 overviews the system and outlines interaction between the learner and the system. The learner using the VXInteractive™ client would connect to the CRG distributed learning server and begin their learning session. As required, the server would send audio information to the speech recognition system and then based on the feedback from the speech system would then determine the accuracy of the spoken information provided by the learner. The middleware between the CRG server and the speech system will be dependent on what speech technology is finally selected. There are several approaches that could be used to support this interface. The CRG distributed learning system has been designed to share information with external systems for just the purpose that this concept paper discusses.

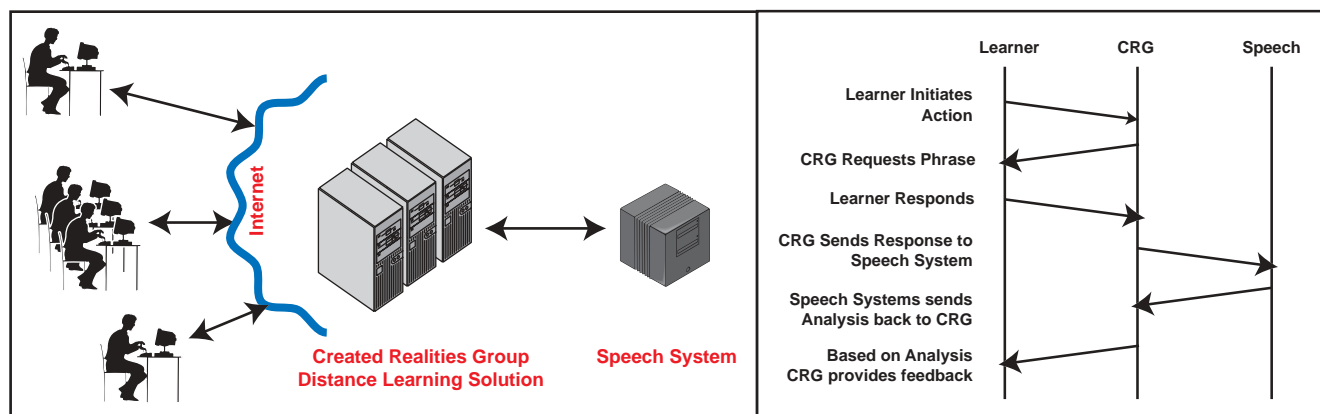


Figure 1: System Connection Overview and Learner Interaction

Conclusion:

Our initial research in this area indicates that the outlined approach to spoken language learning could be highly effective and motivating for the student involved, since the proposed system is interactive, can be expanded, and allows for learners to interact as their language proficiency permits.

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