LITERATURE REVIEW: PERSONALIZING THE LEARNING EXPERIENCE THROUGH VIDEO AND THE MOBILE PHONE TO IMPROVE VOCABULARY ACQUISITION

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INTRODUCTION

Developing fluency in a foreign language is a rewarding and time-consuming process. It can take years of dedicated study in a classroom environment or by using a software program like Rosetta Stone. Although immersing oneself in a country where the target language is spoken can help speed up fluency, it may not always be possible due to time or financial constraints. As work and home demands increase, it becomes ever more difficult to devote time to dedicated study. With the increasing use of the Internet and portable technologies like laptops and mobile phones, an abundance of language-learning products has been developed to make learning more enjoyable and accessible, so that learners can build language proficiency whenever they have the time. However, most of these resources focus on memorizing general words and phrases around conceptual themes (i.e., school, museums, daily routine) that may not always be relevant to the learner's daily life or interests.

The papers described in the next section are looking to improve on these existing products by providing a more personalized, and thus meaningful, language-learning experience for the user. Applications [1] and live wallpapers [2] use the GPS feature on a mobile phone to present vocabulary based on the user's current location; and interactive web-based applications [3][4] provide vocabulary support while the user watches videos of interest with both dialogue and subtitles in the target language. By focusing on a user's everyday activities and interests, users would better enjoy the learning experience and may also absorb language more implicitly as they repeatedly visit the same types of places or watch the same genres of film.

IMPORTANT IDEAS

Edge et al. [1] created *MicroMandarin*, a downloadable mobile phone application that is designed for Chinese language learners immersed in the target language who want to review vocabulary in short bursts during their downtime (i.e., daily commute or waiting in line). Instead of presenting common words and phrases around conceptual topics, the app personalizes the learning experience around the user's everyday activities and habits. It tracks the user's location via their phone's GPS feature and presents relevant vocabulary that can then be applied in the user's interactions with native speakers at that venue type. By personalizing the presented words based on their everyday habits, users would be motivated to use the app because they can apply the presented words in conversation right away. The more times a user visits the same venue type, the more times they will see the same words and phrases, and thus will begin to remember and recall the vocabulary in real-world context. The app was tested on novice-to-intermediate Chinese language learners living in China but could be used by any level of language learner. During the study, the authors split participants into two groups – one group used the original location-based app and the second group used another version of the app which presented flashcards based on high-frequency words. The results showed that participants acquired more vocabulary when it was presented by location; but interestingly, all participants had reported a higher motivation to use the app regardless of the version (frequency or location-based), leading the authors to believe that a product that presents words based on both frequency and location could offer the best overall solution.

Having seen that motivation increases when the experience is more personalized to a user's daily schedule [1], Dearman and Truong [2] wanted to explore whether increased exposure to the language would further improve language acquisition. Instead of a downloadable app that the user would have to explicitly open and use, the authors chose to implement a live wallpaper. In this way, words would be displayed on the screen in 15-second increments while the screen is active, and users would be exposed to the language simply because it is visible. As in [1], the presented vocabulary was a mix of high-frequency words and location-based words; but they expanded the location-based words to include vocabulary for both the venue type and for the specific business where the user found themselves. For the study, the authors created three versions of the app that would present a different vocabulary pool (frequency, venue-specific, business-specific) in each of the three chosen categories of business (coffee shops, bakeries, and cheese shops). From each business category, they selected two specific businesses for the participants to visit and complete a given task (i.e., buy a croissant at bakery X and text the cost). The live wallpaper can be used by any level of Italian language learner, but the study focused on novice learners; and although the participants would view the words on their phone, it was not clear from the paper whether they would need to obtain the information by using the words in conversation. The study found that participants were exposed to each word an average of 5 times and that the greatest improvement in vocabulary acquisition occurred for venue-specific vocabulary – even for those who reported having only used the live wallpaper to complete the given task because they were uninterested in the chosen shops. When comparing *Vocabulary Wallpaper* to *MicroMandarin*, this study demonstrated that the live wallpaper design was a more effective tool for implicit language learning, but it is unclear whether it would truly provide an overall better learning experience because, while participants could recognize and produce the written words in the target language, they were not necessarily encouraged to use the words in conversation with the shopkeepers.

Two important considerations for real-world application that were not addressed by either paper are the battery life of the user's phone and the availability of an Internet connection. The app and live wallpaper are both ideal for those traveling abroad in a country where the target language is spoken, but the user would need to have an international data package to continue to use them if Wi-Fi access is not available. Regarding the phone's battery life, the live wallpaper could be a larger drain on power since it obtains the GPS location and updates words every 15 seconds while the home screen is active. At least with an app, users have the option of shutting it down to conserve battery power; there was no mention about the ability to shut off the live wallpaper.

Instead of utilizing the mobile phone to improve language learning, [3] and [4] chose to focus on the use of video and the way that language learners interact with it. Oftentimes, learners will view a film with original dialogue in the target language while reading subtitles in their native language; and although the learner hears the target language, they are not necessarily focused on understanding the spoken dialogue because they can simply read the translation while watching the action on-screen. For those who wish to use film to increase their vocabulary and improve reading or listening skills, the video must be paused to look up any unknown words or rewound to listen again to the dialogue.

Kovacs and Miller [3] developed an interactive web application, called *Smart Subtitles*, where learners can play a video of interest with dialogue and subtitles in the target language, and the application will make the subtitles interactive. In this way, they hope to increase the user's enjoyment of a film while minimizing the effort required to fully comprehend it. As users watch their chosen video, they can hover over unknown words in the subtitles to get a definition, click a button for the entire sentence translation, or view the proper pronunciation with the word color-coded based on voice inflection. The study focused on intermediate language learners of Chinese, but *Smart Subtitles* also supports videos in German, French, Spanish, and Japanese. Participants watched the same two 5-minute video clips, one clip had *Smart Subtitles* and the other had dual subtitles. The authors selected dual subtitles for the second clip because the target language and native language are shown on-screen at the same time, ensuring that participants would be exposed to the written target language (as they are with *Smart Subtitles*) while reading the translations in their own native language. Overall, the results of the study found that participants enjoyed watching videos more with *Smart Subtitles* compared to dual subtitles, and they were able to recall twice as many vocabulary words. More interestingly, the study also found that participants did not spend a significantly longer amount of time watching the videos with *Smart Subtitles*, indicating that in real-world application with intermediate learners, the features to support language comprehension are only used when needed and do not lessen the film's entertainment value. Although *Smart Subtitles* could be used by novice learners, their limited vocabulary, and the fact that the subtitles are in the target language, may hinder their overall enjoyment of the film

as they would need to spend more time translating individual words or entire sentences of dialogue. However, a strong interest in the film could motivate the user enough so that the time it takes to look up unknown words becomes irrelevant.

Smart Subtitles [3] was designed to work with any DVD or film that the user wanted to watch, provided that the subtitles could be downloaded by the program and converted into interactive subtitles. While this is typically not a problem for mainstream films, subtitles may not always be available (or of decent quality) for smaller-budget films and cartoons. Culbertson et al. [4] designed their website to address this issue while working to improve language comprehension for learners of all levels. As the user watches the video on the website, they hear the dialogue and read the machine-generated captions in the same language as the video. If a caption is believed to be incorrect, the user can choose to either type the correct word or click on the word to get a list of up to four other probable words (as per the machine translation's algorithm); and a dictionary is also available to verify vocabulary definitions if needed. The program combines the users' corrections to produce the most accurate captions for anyone else watching that video; thus, each caption correction not only helps to improve the user's own listening and reading comprehension, but also contributes to the overall quality of the video for other users of the program. In the study, the authors wanted to test whether the tool's caption-correction options sufficiently support learners of all levels. Participants from all language learning levels (novice, intermediate, and advanced) were randomly assigned to one of three groups. The first group watched the video with error-free captions in the target language, testing their overall language comprehension skills at each level; and the other two groups were asked to correct captions using only the given technique (type the word based on what you hear, or choose the best word from a list). No matter the participant's language level, all groups watched the same children's video with both captions and dialogue in Spanish, and all were told that the captions may contain errors. The study found that some improvement occurred for novice learners because they could select a possible word from a list; but overall, the improvements in vocabulary comprehension were not significant enough to conclude that any one technique for correcting captions provided a better result than the other. Although some users may be motivated by the fact that their corrections are helping others, the strength of this tool for a language learner is really to practice listening comprehension skills because, depending on the time available, the user can either select the correct word from a list or challenge themselves to produce the word on their own.

CONCLUSION

In looking at tools to better engage a user and personalize the language learning experience, mobile phones and video are great options. [1] and [2] utilize the phone's portability and GPS feature to present vocabulary relevant to the user's own daily activities, while [3] and [4] look to enhance the video viewing experience by using interactive subtitles. All four products have the potential to give the user a personalized learning experience, but only the study done with *MicroMandarin* [1] showed its true capabilities for real-world application because the authors allowed participants to go about their normal activities; the other three studies limited participants based on where they went [2] and what they watched [3][4]. The findings of each study demonstrated that each product could improve overall vocabulary acquisition and language skills; but it is important to note that these products were not designed to completely replace traditional learning methods such as language-learning software or classroom teachings. Instead, they are meant to enhance these methods by providing learners with opportunities to hear and see the language as it is used in real-world context and to learn vocabulary relevant to their own personal interests, whether it be related to places they habitually go or to film genres they enjoy watching.

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