

Personalizing Augmented Flashcards Towards Long-Term Vocabulary Learning

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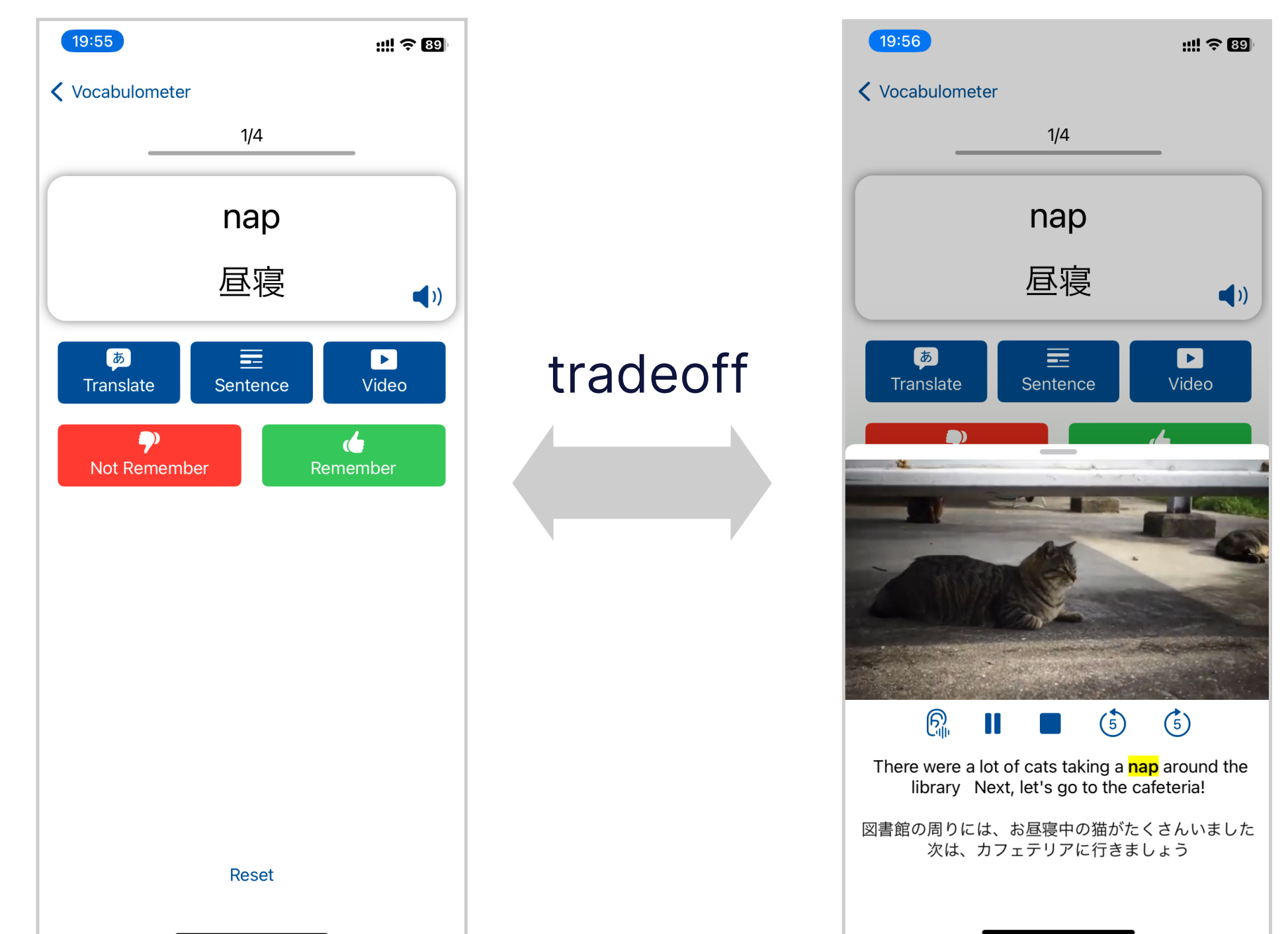


Motivation

Mobile flashcards have been widely used for vocabulary acquisition. Standard flashcards contain only the target word and its definition, making them an efficient way to learn vocabulary. However, they tend to be monotonous. Since long-term vocabulary learning has been a challenge for standard flashcards, multimedia-based augmented flashcards have been proposed by several researchers. This approach motivates users and creates immersive learning experience. However, efficiency is compromised with this approach.

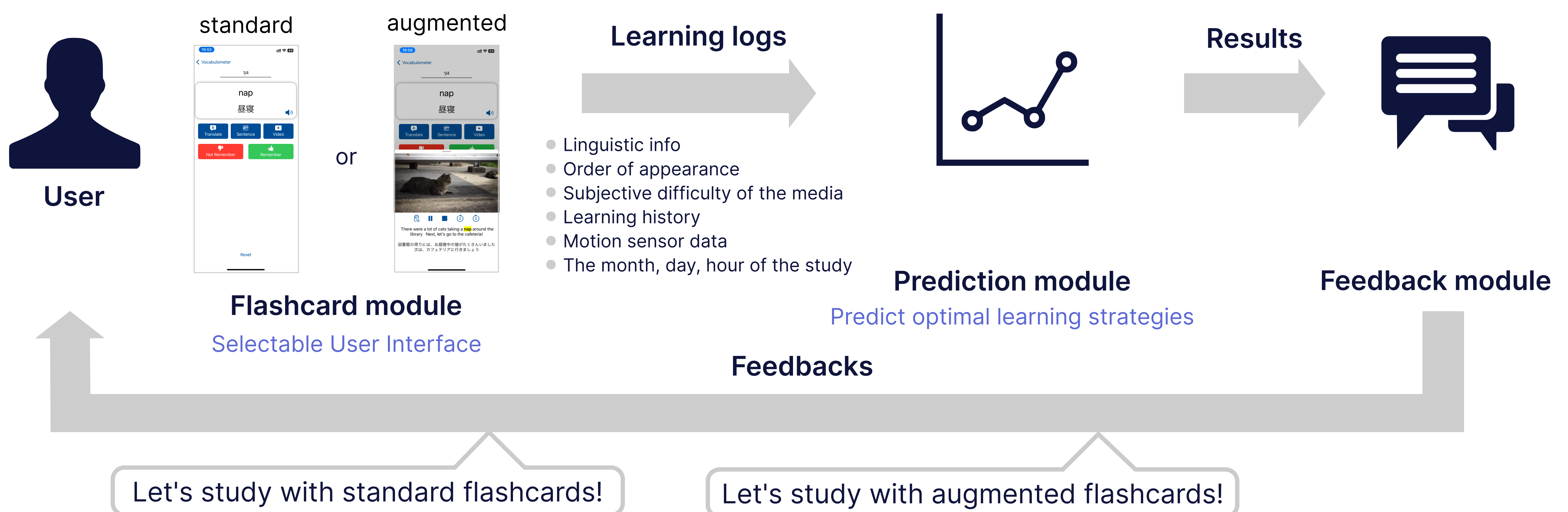
System Overview

We introduce a system that personalizes augmented flashcards towards long-term vocabulary learning. The system provides a user with two types of flashcards, standard and augmented flashcards. Then, the system predicts which to use next based on the user's learning logs. Finally, the system recommends the user to use the flashcard predicted by the prediction module.



Standard Flashcards
Efficient / Monotonous

Augmented Flashcards
Inefficient / Immersive

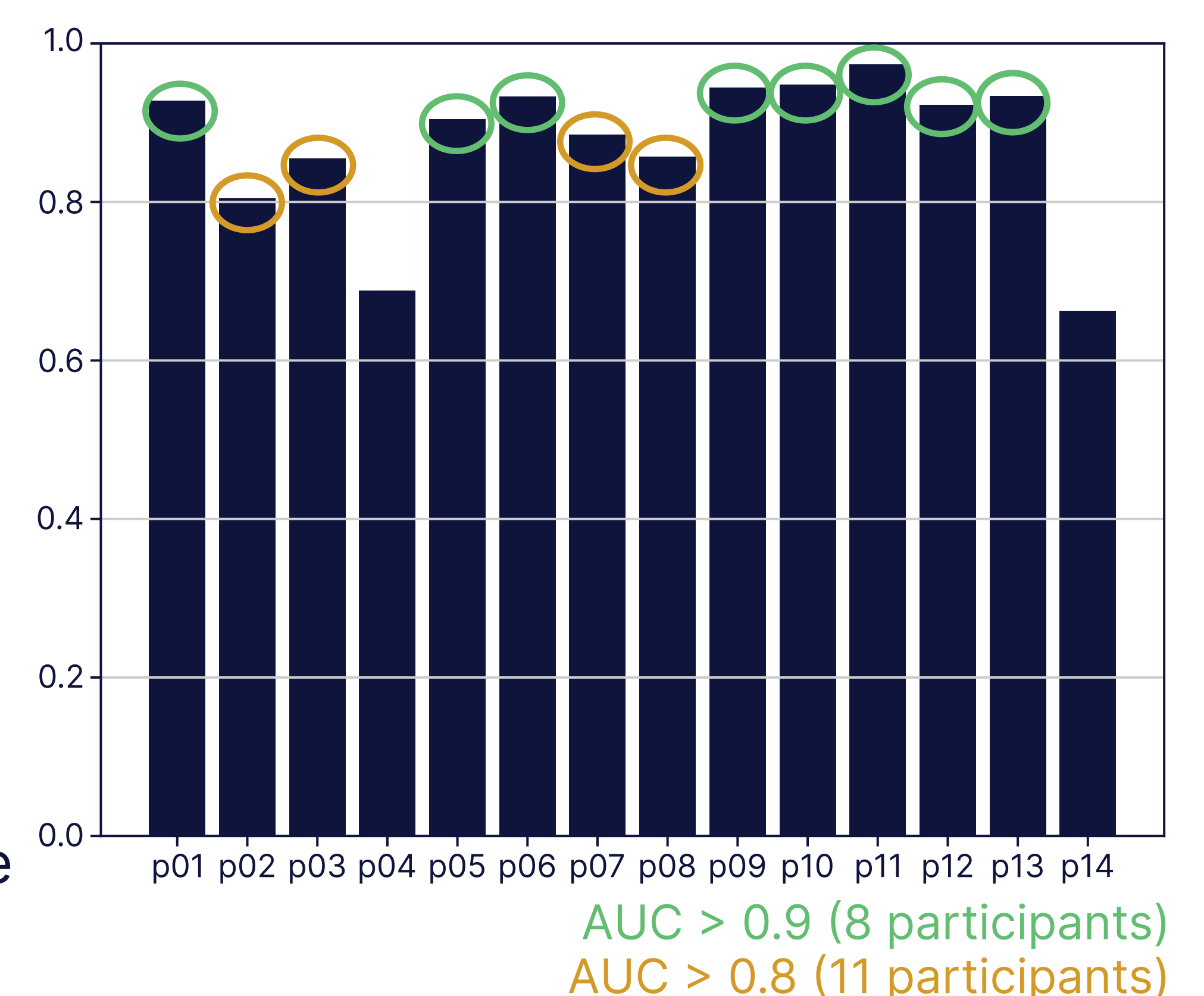


Data Collection & Analysis

We have collected users' learning logs to train the prediction module. The data was collected from 14 Japanese university students in-the-wild setting for 4 weeks. During the data collection, the participants were instructed to remember English vocabularies, and score as high as possible on vocabulary tests. We used Random Forest for the classifier in the prediction module.

We have evaluated the possibility to capture features of optimal behaviors. The evaluation was done by leave-one-participant-out-cross-validation.

The result showed that the area under the ROC curve (AUC) was high for most participants. Therefore, the result suggest that the prediction module can predict the optimal learning strategy accurately.



Conclusion & Future Work

We introduced a system that provides feedback to learners who are less effective in learning English based on the English learning methods of those who are effective in learning English. The data analysis show valuable features for the prediction module, and suggest that it is applicable for the complete system.

As the further step, we will embed our trained prediction module into our system, and observe whether the users' behavior will change and whether the users perform better in vocabulary acquisition.

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