"Break the Language Great Wall" (RedClay): The Language Learning Application

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Abstract. There are more and more people moving to China for Chinese-learning. We applied the concept of "language partner" to build a language learning application for two groups of people – foreigners in China eager to discover their host language and culture and Chinese citizens wanting to improve their foreign tongues. This language-learning application is called "RedClay", a reference to the color of China and the material used in building the Great Wall. As a mobile-web application, RedClay provides social networking and learning functions (including cultural support and preference-based vocabulary lists) to help people who want to improve their foreign language abilities meet each other in real life.

Keywords: Chinese learning · Learning application · Social network · Language learning and culture · Language partner

1 Introduction

In 2010, there were more than 40 million people studying Chinese [1], and 750,000 people took the HSK Chinese proficiency test [2]. Learning Mandarin Chinese has become a pervasive need for people from different societies to get familiar with both the Chinese language and culture [3].

The utilization of information technology such as mobile devices has become an emerging trend. It is promoted by some researchers of Computer-Assisted Language Learning. For example, Chen and Li [4] describe a project which combines context/location awareness with a rudimentary kind of intelligent tutoring system. The delivery of content is based on both the user's profile, learning history and current location, taking advantage of mobility and making the learning process more interesting and contextual. Robert [5] supports the notion that language educators should encourage and assist learners' autonomy, as well as enable and provide means for learners to combine formal and informal learning. Learning becomes more efficient and permanent when tied to learners' lives outside the academic environment. Mobile devices are a great way to build this tie between users.

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The use of multimedia tools can also enhance the motivation and the range of education. Sweller [6] argued that instructional design can be used to reduce the cognitive load of learners. Language self-learning could be more effective with multimedia tools, such as animations, flash cards or digital dictionaries. The motivation for learning can also be enhanced [7].

A lot of applications have been developed to teach Chinese. Many of them are simple dictionaries, but there are also more complex ones that involve innovative features. Table 1 compares seven popular Chinese learning applications of which we tried to identify their specificity. Flashcards are the most commonly used learning process. Some mobile applications such as *Hello Talk* already focus on an interaction and exchange between users. It connects two individuals eager to learn each other's language. However, the resulting relationships are not meant to develop outside the virtual world.

The aim of this study is to develop a language learning application of which the focus is set on social networking, motivation and cultural support. The application will be called "RedClay", a reference to two Chinese symbols: the red color, and clay, a material used for constructions and referring to the Great Wall of China.

2 Survey of User Needs

2.1 Target User

The university environment is conducive to finding eager-to-learn and available people. Therefore, for the first version of RedClay, we decided to limit the scope of our user-base to a student population. The target users of RedClay could thus be described as follows:

1. 20 to 30 years old university students interested in learning more about foreign cultures
2. People ready to interact through an English-Chinese relationship and make new acquaintances.

Eventually, our aim would be to extend our target population to all foreigners in China and all Chinese people wanting to find a language partner.

RedClay will be developed in two versions: one for foreign students wanting to learn Chinese, and one for Chinese students wanting to learn another language and more specifically English. Those two versions shall also enable the app to identify the type of user in order to suggest a contact only between a foreign and a Chinese student. In order to figure out what would be the main functions offered by RedClay to its users, a survey was conducted.

As this survey was meant to identify the needs of the whole target population, we made two versions of it: one for international students and another for Chinese students. We got answers from 63 Chinese students and 45 international students.

Table 1. Comparison of popular Chinese learning applications

Pleco	· Great dictionaries -- It offers many input possibilities: English, Pinyin, Chinese characters, voice and pictures (OCR). · Flashcard System -- It provides flashcards to help the user memorize vocabulary. · Advanced function -- It has developed and now offers sentence propositions and an apprenticeship module. The most basic version is free but some options are not.
Anki Flashcards	· Flashcard System & community -- Ankidroid is based on "cards" and "decks" which you can download freely through the internet. These decks are created and evaluated by members, so there is an Ankidroid community. · SRS algorithm – Spaced repetition software, test users based on memorization. · Memory card -- Ankidroid is not only for languages learners, but also for anything that can require the creation of a flashcard deck. · Exercise -- Users can define the amount of card they want to study. The cards are mostly used to enable people to learn new vocabulary and they have the form of small exercises.
Hello Talk	· Online communication -- It basically works like an international "whatsapp". The user can write and send vocal messages to people whose mother tongue is the one he wishes to learn. · Record -- Hello Talk gives one the possibility to listen, write, and translate messages automatically. Users can save messages they wish to revisit later, and record themselves. · Localization -- Users can freely decide to activate localization so that they can meet each other in real life.
Skritter	· Chinese characters writing -- It is meant to make the user review specific words and characters, their tones (through audio samples) and how to write them (in the right order). It also includes a translating function for single words. · SRS algorithm -- test users based on memorization. · Fee -- Around 15 US dollars per month.
Hello HSK	· HSK test -- Helping users progress in HSK Chinese test norms and evaluations is the main purpose of Hello HSK. · Training -- It has 6 training levels, and each of them is again subdivided in the different exam parts (Writing, Listening Comprehension, and Reading). The user can evaluate his level (and hence his progression) through exercises and training. It also provides corresponding lessons consisting of vocabulary, grammar points and common expressions. · Simulation test -- It provides the simulation test in order to understand the scores.
Chinese Character	· Culture-transmitting -- It focuses on Chinese characters and their evolution (from the original representation to present-day simplified symbols). It gives the meaning of the characters in 8 languages including Chinese and English. It is interesting for users who want to discover more about Chinese symbols.
Chinese Writer	· Chinese characters writing -- The learning process uses character packs. There are several difficulties, some are for casual use and others are designed for the HSK test. · Personalization & sharing -- Users can create new packs. Moreover, these packs can be shared with friends online.

2.2 Result

2.2.1 Students and Languages

Most of the international students that were surveyed would like or strongly wish to learn Chinese. 40 % of international students even ticked "I came here to learn Chinese". In addition to this, 62 % of the international students currently use a Chinese learning app (mainly the ones tested in Table 1: Pleco and Ankidroid).

Chinese students are interested in English (75 %), German (33 %), Japanese (32 %) and French (27 %) and 41 % of them use learning applications to learn foreign languages.

2.2.2 Friendships

20 % of international students estimate they have 10 or more Chinese friends. 42 % of them have 3 or less, and the remaining 38 % declare they have around 5. The Chinese students' repartition is more extreme as 25 % of them don't have any international student friends while 35 % have 10 or more.

84 % of the international students would like to meet more Chinese students and 9 out of 10 would like to meet them as friends rather than "Chinese teacher only" (7 %) or "Chinese guide" (4 %). Results are similar for Chinese students as 92 % of them would like to meet more international students, mostly as friends (in a same proportion: 90 %). 73 % of the international students and 68 % of Chinese students are eager to meet new students through an app.

2.2.3 Joint Activities

More than half of the international students are interested by most the activities we suggested in the questionnaire, especially learning Chinese (73 %), cultural activities (64 %), traveling and playing games (62 %), playing sports and visiting places around Beijing (60 %). Having lunch or dinner on campus (58 %), cooking (56 %) and going out to eat (51 %). The repartition is almost the same among Chinese students, although they ticked on average less boxes, so that the percentages are lower overall. The order as also differs: learning a foreign language ranks first (62 %), then traveling (56 %), doing sports (44 %), playing games (40 %), having lunch or dinner on campus (37 %), going out to eat (33 %), visiting places around Beijing (33 %), cooking (32 %) and cultural activities (27 %).

3 Development

3.1 Main Idea

RedClay is a mobile-web language learning application, coded in HTML5 and PHP. RedClay aims at motivating language learners to master a foreign language. The design of RedClay is based on the creation of strong "language partner" relationships. A "language partner" relationship involves real contact and intellectual enrichment through everyday life situations and activities.

As a complex language, Chinese consists of distinct aspects: Reading, Writing and Speaking. Linking written and oral Chinese requires practice because it is not phonetically intuitive [8]. The objective of RedClay is not to provide full lists of vocabulary and lessons to users learning a foreign language. Its aim is to give them few key words in relation with different fields in order to start a conversation with their language partner about a subject and learn from him/her directly.

Such interactions involve various assets RedClay relied on during the development process: social networking, motivation and cultural support.

Social networking is an upcoming trend in language learning. It has been found that social networks significantly influence learners' performance [9, 10]. According to Benson and Avery [11], the digital generation is more willing to access information and interact with others through the internet. Motivation has a major effect in learning

efficiency [12]. Therefore, RedClay tries to raise the level of involvement by giving users the possibility of doing common activities according to their interests. It is impossible to ignore the relationship between language and culture. Second language acquisition is bound to second culture assimilation [13]. According to Kuo [14], culture and language affect each other. Language is the epitome of the speaker's culture, and culture relies on the philosophy, religion, economic and social position of the individual.

A language learning application with cultural support can benefit from the features of Social Network Sites (SNS) and the importance of culture. It provides a new learning process where users can interact and learn from each other.

3.2 Information Architecture

Figure 1 is the information architecture of RedClay. The red borders represent the main functions of the application.

Every page is in Chinese or in English depending on the choice of the user during the registration phase. The welcome page has to be bilingual.

A user viewpoint is going to be used in order to explain the information architecture. First, the user arrives on the welcome page (Fig. 2). He/she then has two choices: whether to log in or to register. If he/she does not have an account, the user has to register which can be done in two steps. The first step is to fill in personal information (left side of Fig. 3). The second step consists of setting user preferences (right side of Fig. 3). Once the user finishes the registration, the account is created. The user is then able to log in on the welcome page and access to the homepage.

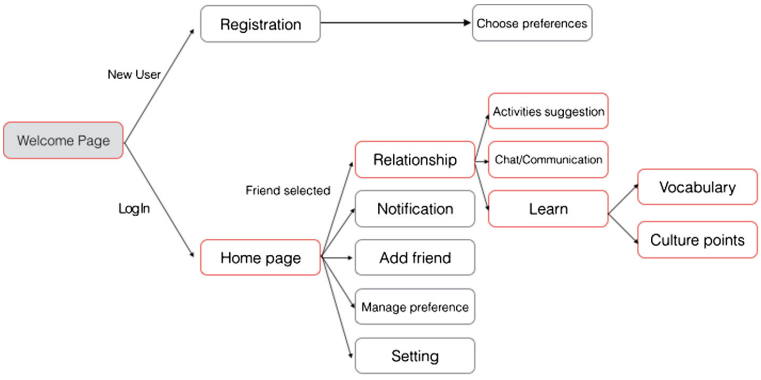

Fig. 1. Information architecture of the application

In the homepage, several relationships are available and are sorted according to frequency of interaction. The user can select one of his/her language partners and manage their relationship. Some activities are suggested according to the common interests of the user and his/her language partner. Users can also chat with their friends

Fig. 2. Welcome page

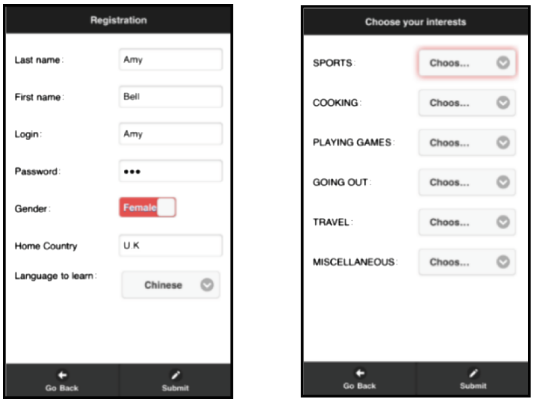

Fig. 3. Registration pages: registration info on the left and Interests on the right.

and access to the learning section of the application. On the learning page, the topics they both are interested in are shown in priority. Users can find some useful vocabulary words and interesting cultural points to discuss with their language partners.

3.3 Social Network

Social Network Sites provide new ways for language learners to interact and connect with one another. According to Harrison [15], SNS can help language learners to explore new relationships. By implementing the concept of "pedagogy 2.0" and "language partner", RedClay tries to build a platform for language learners with common interests meet each other. RedClay mainly provides:

(1) **Preference-based recommendations.** RedClay is trying to help users find language partners who share common interests to raise their motivation for learning.

(2) **Suggestions.** RedClay provides activity suggestions to "language couples" based on their common interests – such as doing sport or trying traditional food together – to help them interact from online to offline and enhance the cultural understanding.
(3) **Learning support.** RedClay offers specific topics, vocabulary lists, and related culture points for each "language couple" to help them have a profound and contextual interaction.

3.4 Interest

The design of the two-steps registration procedure (personal information form and preferences choice), is shown on Fig. 3. After registration, users can start searching for language partners with common interests and receive invitations from other users. For example, Amber is a female exchange student from the U.K currently in China. During her registration on RedClay, she chooses Chinese cooking, Athletics, playing Mahjong, and visiting Beijing as her preferences. In the "Add friend" page, she can find some language partners with similar preferences and send them invitations. She can accept or cancel invitations by checking the notifications, as shown on Fig. 4.

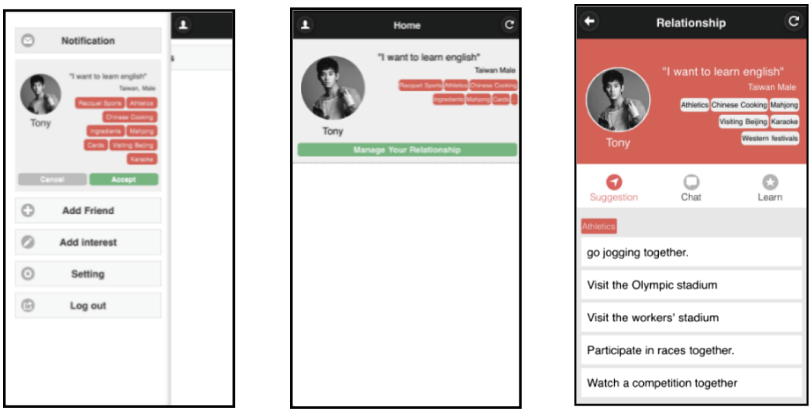

Fig. 4. From Left to Right: Notification tab, Home Page, and a Relationship Page

In the sidebar, "Add interests" and "Setting" allow the user to change his/her interests and password. In the homepage, users can check their language partner lists and manage their relationships.

3.5 Friendship

The core of the application is the management of relationships between language partners. In the relationship page, RedClay provides each "language couple" with activity suggestions based on their common interests. For example, as Amber and Tony

both like Athletics, Chinese cooking, playing Mahjong and Visiting Beijing, they both can see suggestions related to these preferences in their relationship page. RedClay also provides a chat function that allows users to communicate and discuss their availabilities. There are 34 categories of vocabulary provided in the learning section. They follow an order based on the preferences both friends choose. As an illustration, for Amber and Tony: Athletics, Chinese cooking, playing Mahjong, and visiting Beijing will consist of the top four ranking, so that they can quickly access vocabulary and cultural information in these subjects.

3.6 Vocabulary/Cultural Support

In the learning page, the user can select one topic that he/she wants to learn about. The topics shared with his/her friend are suggested in priority. The board where the user can choose a topic is shown on the left side of Fig. 5.

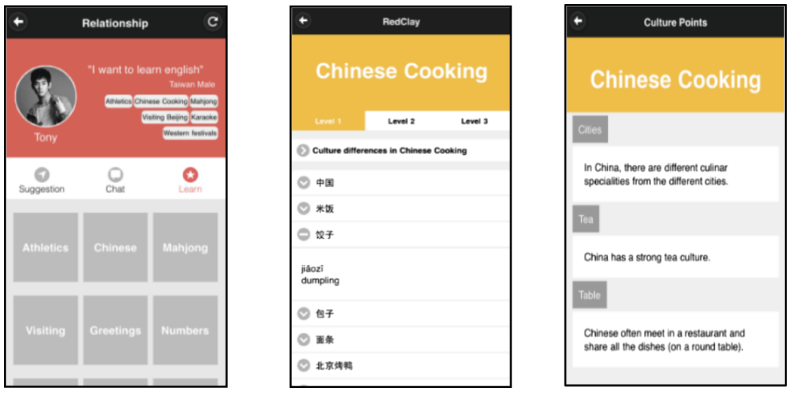

Fig. 5. From Left to right: Learning page, Chinese cooking page where "dumpling" has been selected, Cultural point page.

After selecting a topic, the user arrives to the screen in the middle of Fig. 5 (Chinese cooking, in this example). The vocabulary lists display within three levels and the user can choose one of them. By clicking on a word, the user can make the pinyin and the English word appear. This part is useful for those who want to learn some new words or have a discussion with their friends.

The cultural exchange in the language partner relationship is also a priority. The user can access cultural points from the vocabulary page. All the cultural points of the topic are shown on the screen with a title and a description as seen on right side of Fig. 5. This part is useful for users who want to deeply understand culture differences through in-depth communication modes.

4 Contents of RedClay

4.1 Categories

The categories and subcategories come from the results of the survey. RedClay includes the following categories: Basic (to enable users to actually learn the basics of Chinese or a foreign language), Sports, Cooking, Playing Games, Going out (including cultural activities), Travelling (including traveling and visiting places around Beijing), Miscellaneous (including other subcategories that seemed relevant to us).

4.2 Sub-categories/Topics

All subcategories included various subcategories detailed in Table 2. In each subcategory, we decided to sort the vocabulary we provided according to 3 different levels of language. It would enable users to improve their level with new words of vocabulary.

To these words of vocabulary were added cultural points for both Chinese and international students related to each subcategories.

Table 2. Categories and subcategories

BASICS	Greetings, Numbers, Moving around
SPORTS	Football, Basketball, Martial Arts, Racquet Sports, Athletics, Water Sports, Mountain Sports, Others
COOKING	French, Chinese, Japanese, Moroccan, Italian, Mexican, Ingredients, Utensils
PLAYING GAMES	Mahjong, Chess, Cards, Other Games
GOING OUT	Visit Beijing restaurants & bar, Karaoke, Others
TRAVELLING	Transport, Beijing, Accommodation
MISCELLANEOUS	Western festivals, Chinese Festivals, University, Politics

5 Conclusion

RedClay is a mobile-web application aiming at motivating learners to master a foreign language. By implementing the concept of language partners, RedClay offers a new source of motivation and tries to help each "language couple" interact from online to offline. In real-live interactions, each "language couple" may do activities suggested by RedClay and have language and culture exchanges.

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References

1. Confucius Institute Headquarters (2010)

2. Liu, L.: "Chinese language proficiency test becoming popular in Mexico", 27 June 2011. Accessed 12 September 2013
3. Bianco, L.J.: Advantage plus identity: neat discourse, loose connection: singapore's medium of instruction policy. In: Vaish, V., Gopinathan, S., Liu, Y. (eds.) Language, Capital, Culture: Critical Studies of Language and Education in Singapore, pp. 5–22. Sense Publishers, Rotterdam (2007)
4. Chen, C.-M., Li, Y.-L.: Personalized context-aware ubiquitous learning system for supporting effective English vocabulary learning. Interact. Learn. Environ. **18**(4), 341–364 (2010)
5. Godwin-Jones, R.: Emerging technologies: mobile apps for language learning. Lang. Learn. Technol. **15**(2), 2–11 (2011)
6. Sweller, J.: Cognitive load during problem solving: effects on learning. Cogn. Sci. **12**(2), 257–285 (1988). doi:10.1016/0364-0213(88)90023-7
7. Chuang, H.Y., Ku, H.Y.: The effect of computer-based multimedia instruction with Chinese character recognition. Educ. Media Int. **48**(1), 27–41 (2011)
8. Krashen, S.D.: Second Language Acquisition and Second Language Learning. Pergamon Press, Oxford (1981)
9. Cho, H., Gay, G., Davidson, B., Ingraffea, A.: Social networks, communication styles, and learning performance in a CSCL community. Comput. Educ. **49**(2), 309–329 (2007)
10. De Jorge Moreno, J.: Using social network and dropbox in blended learning: an application to university education. Bus. Manage. Educ. **2**, 220–231 (2012)
11. Benson, V., Avery, B.: Embedding web 2.0 strategies in learning and teaching. In: Lytras, M.D., Damiani, E., Pablos, P.O. (eds.) Web 2.0 , pp. 1–12. Springer, USA (2007)
12. Mondahl, M., Razmerita, L.: Social media, collaboration and social learning – a case-study of foreign language learning. Electron. J. E-Learn. **12**(4), 339–352 (2014)
13. Spackman, C.L.: Culture and Second Language Acquisition (2009)
14. Kuo, M.M., Lai, C.C.: Linguistics across cultures: the impact of culture on second language learning. Online Submission, 1(1) (2006)
15. Harrison, R., Thomas, M.: Identity in online communities: social networking sites and language learning. Int. J. Emerg. Technol. Soc. **7**(2), 109–124 (2009)