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Supporting Awareness of Learning Partners for Mobile Language Learning

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Abstract: This paper proposes a Social Networking Service site based mobile environment for learning foreign languages called SONLEM, which supports learners to find a partner who can solve the language learning problems at the online community, and an appropriate request chain of friends will be recommended upon their request. The learner can practice his second language with a native speaker who is learning his language.

Keywords: Mobile learning, SNS, foreign language learning.

Introduction

In recent years, participation in online Social Networking sites like MySpace, Facebook and Mixi is very popular for young people. All of these services allow users to create online profile and share personal information with friends. The Social Networking Service (SNS) has got a lot of attention. The SNS is defined as a service that "allow(s) individuals to present themselves, articulate their social networks, and establish or maintain connections with others" [1] or "a site that allows users to create individual profiles in hopes of making contact with other site users that share similar interests or goals" [2]. The number of people who are interested in using the SNS is growing quickly from 2006 to 2010. Users use it to write the diary, read and comment the others' diary to communicate together.

Moreover, using the mobile devices such as mobile phone, PDA, iPad, we can access the Internet by the wireless at the University, Airport, Office, Station, Family, etc. All of these technologies have given birth to the Mobile Learning field, Mobile Learning is increasing worldwide.

We propose a collaborative learning SNS based mobile learning environment for language exchange and call it SONLEM (Social Networking based on Language Exchange site in Mobile learning environment). This is a Mobile Assisted Language Learning (MALL) system. The benefits of m-learning in language education have been widely documented [3,4].

The SONLEM environment supplies learners to study the second language. It allows the members to find foreign language partners, practice foreign language with native speakers, share knowledge, interact, collaborate, and help each other. It can support to find foreign language partner who can help problem-solving and to enhance cooperation between learners. The SONLEM environment is a website for language exchange and international communication. It is supported that each learner has a mobile device connected to the Internet through wireless connection. We make the system can be accessed not only by personal computers but also by mobile devices such as PDA, iPod/ iPad, mobile phone, etc.

1. Language exchange

Language exchange is a method of language learning based on mutual language practicing by learning partners who are speakers of different languages. (http://en.wikipedia.org/wiki/Language_exchange). It is two or more people who speak different languages practicing each other's language.

In a language exchange, learners practice more than in a class, talking with native speakers of the language they are learning. In a class, there is very little time to practice speaking, because a lot of time is spent on instruction and the class may have too many learners to give everyone enough meaningful practice. That means learners are not used to listening to native speakers and may not be able to understand them. A language exchange with native speakers is a good way to improve your language skills. It is also help to learn the real spoken language of the culture, informal expressions and slang.

It is very important to encourage not only individual learning but also collaborative learning in order to augment practical communication among learners and accumulation of the expressions. The SONLEM environment can employ Computer Supported Collaborative Learning (CSCL) that focuses on the socio-cognitive process of social knowledge construction and sharing based on social interaction [5]. This paper describes the design and the implementation of the SONLEM environment.

2. The SONLEM Environment

When a learner faces problems in daily life learning, he will searches the answers on the Internet using search engines, such as Google, Yahoo, etc. The problem is, however, there are lots of irrelevant answers. The learner needs a reliability answers.

In SNS, the members not only have direct personal relationships such as friends, but also have indirect personal relationships such as friends of friends, so the members of the SNS have mutual trust and closeness. According to this characteristic, as a SNS member, a reliability answer can be expected. A new problem is how to find the appropriate person to solve the problem.

In order to find an appropriate person who can help the learner to solve the problem, learner has to be aware of other person's profile, interest and past actions [6]. In this language learning system, the profile includes members' mother tongue, second language and language they are learning.

At first, the learner should write some keywords about the problem and searches it on the SNS, and then the SONLEM will be aware of the person who can effective solve the problem through the other person's profile, action history and individual information, and recommend appropriate person to the leaner.

There is a formula for calculating the appropriate degree. Consider that n is the number of the keywords that the learner input, and compare with the other person's profile, interest and actions, the number of the matched keywords is nm. It is assumed that the Level of Matched Keywords (LMK) is calculated as follows:

$$\left(LMK = \frac{n - n_m}{n} \right) \quad \text{, where} \quad 0 \le LMK \le 1$$

In case of LMK value is equal or close to zero, then the person will be recommended as an appropriate person who is close to the learner's request.

Only finding the appropriate person is not enough, in case the person is a stranger for the learner, how to get help from him?

When a learner needs to ask for help from the stranger, the SONLEM environment is able to advance the learner an appropriate chain of friends (CF), and then the learner contacts the

stranger for help tracing the CF.
In case that there are many CFs, the SONLEM environment recommends the best CF according to the strength of the personal relationship and the length of CF.

2.1. Strength of Personal Relationship (SPR)

As we know, the personal relationship is different in SNS. Some personal relationships are very close: They are friends, family members, colleagues, etc. Other personal relationships are unfamiliar: They are strangers, and they have no personal contacts. In SONLEM environment, the personal relationship is classified into five levels based on the SPR. Level 1 is an unfamiliar relationship and level 5 is an intimate relationship.
Before using the SONLEM environment, the learner should find the friend and preset the level of the personal relationship.
There is a formula for calculating the SPR. Consider that n is represents the level of the personal relationship which was set by the learner before. It is assumed that the SPR is calculated as follows:

$$\left(SPR = \frac{5-n}{5} \right), \text{ where } 0 \le SPR \le 1 \text{ and } n = \{1,2,3,4,5\}$$

In case of *SPR* value is equal or more close to zero then the personal relationship is more intimate, and *n* is a natural number from 1 to 5.

2.2. Length of CF (LCF).

"Length" means the numbers of the intermediaries in the CF. Milgram conducted several experiments to examine the average path length for social networks of people in the United States, he found that anyone can be connected to any other person through a chain of acquaintances that has no more than five intermediaries. The experiments are often associated with the phrase "six degrees of separation" [7].
According to the "six degrees of separation" theory, we can know a social network typically comprises a person's set of direct and indirect personal relationships, and the length of the CF is no more than six persons. So we get a formula for calculating the *LCF*. Consider that n is the number of the persons in the CF.

$$\left(LCF = \frac{n}{6} \right), \text{where } 0 < LCF \le 1, \mathrm{n} = \{1,2,3...\}$$

In case of *LCF* value is more close to zero then the number of the persons is smaller, and *n* is a natural number.

2.3. CF Adequacy (CFA).

The CF should not be only the small number of the persons, but also with a close relationship between these persons. It is the conditions to determine whether the CF is appropriate or not.
Consider that *n* is the number of the persons in the CF, m_k is level of the personal relationship for the person *k*. Merge two formulas (*SPR* and *LCF*) into one formula, and we get a formula for calculating the *CFA* in the following:

$$\left(CFA = \sum_{k=1}^{n} \left(\frac{k}{6} * \frac{5-m_k}{5} \right) \right), \text{where } 1 \le m \le 5,\ n = \{1,2,3...\}, \text{ and } \mathrm{k} = \{1,2,3...\mathrm{n}\}$$

In case of *CFA* value is more close to zero then the CF is more appropriate, *n* is a natural number, and *k* is a natural number from 1 to *n.*

3. Implementation

We used wireless LAN (IEEE 802.11b), Tomcat 5.0 as the server and ran it on the CentOS5.0, used Java to develop the SONLEM environment. The Database schema is designed and implemented using PostgreSQL in order to store all learner profiles, learner actions, messages and information etc. The Figure 4 shows the interfaces on the PDA.

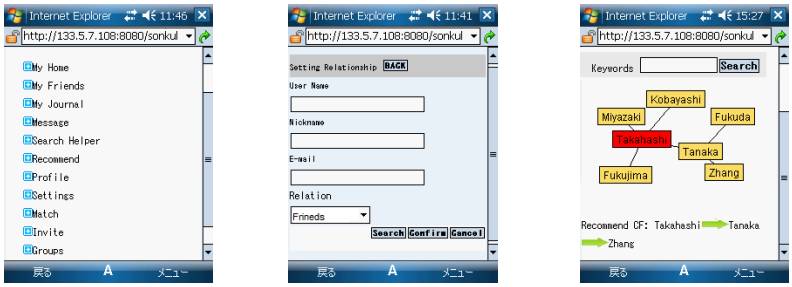

Figure 4. PDA.

4. Conclusion and Future work

In this paper, we proposed the SONLEM environment for language exchange, and the point is it supports learner to get help from other SNS members, at the end makes them help each other. The SONLEM environment is also very beneficial to be taught and corrected by a native speaker of the language you are studying. A language exchange is more effective than the other popular ways to practice a foreign language. By using the SONLEM environment, users can teach and learn languages as well as have international exchanges with each other.
For the future work, we will open this system to the public and evaluate it.

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