

An Activity Theory based Approach to Introduce mLearning in Agriculture

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ABSTRACT

In the recent years, mobile technologies have effectively catered for the information needs of the agriculture-stakeholders. This study intends to see how to introduce mobile learning within the domain of agriculture so as to facilitate learning process, and supporting farmers' decision making. A preliminary survey has been conducted as a component of the pilot study to find out the subjects (i.e. Study community) and tools or technologies presently available among the study community. The findings of this preliminary study will be used in designing future mlearning interventions so as to strengthen the present agriculture extension system. We propose to use the activity model together with other methodologies such as participatory methods to design, implement, and evaluate mlearning activities

Author Keywords

mLearning, Agriculture, Activity Theory

INTRODUCTION

Mobile technologies are found to be providing cost-effective and efficient solutions in addressing the agriculture information needs of the stakeholders (Dhaliwal & Joshi, 2010) however, the possibility of using mobile phones as learning devices has got little attention so far. Hence we intend to see how to introduce mobile learning within the domain of agriculture so as to facilitate learning process, and support farmers' decision making. This paper presents the findings of a preliminary survey carried out as a component of the main study. The main objectives of the survey were to study the possibility of introducing mLearning among a group of young farmers.

LITERATURE REVIEW

Keegan, (2005) defined mobile learning as 'the provision of education and training on PDAs/palmtops/handhelds, smart phones and mobile phones. Taylor et al, (2006) defined mobility as learning mediated by mobile devices, mobility of the users, and the mobility of contents and resources in the sense that it can be access from anywhere.

Activity theory was widely used in designing mobile learning environments (Uden, 2007). It is also considered as a powerful and clarifying descriptive tool which provides an ideal framework to study the major dimensions of mobile learning i.e. learner, devices, and outcome as separate components as well as their interactions (Nardi, 1996).

METHODOLOGY

Activity theory has so far being used to structure this study, and to derive research questions (Figure 1). Accordingly the preliminary survey was planned to address two of the important concepts as proposed in the Activity theory i.e. subjects and tools.

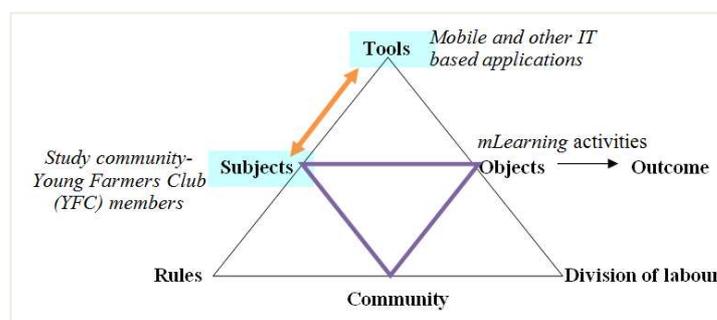


Figure 1. Concepts studied in the preliminary survey

The preliminary survey was planned to study the possibility of introducing mLearning among the members of Young Farmers Club (YFC) – Ancumbura AI range, in Kandy district Sri Lanka. This YFC was purposively selected for the study based on their involvement in agriculture activities for the past 5 years. Out of the 44 members of the Ancumbura YFC 22 members were randomly selected to participate in the preliminary survey. The background of the study group was studied in detail to learn their familiarity with technology, education level, attitudes towards using mLearning in agriculture etc. Tools and technologies which are presently in use among the YFC members were also studied including mobile and other IT based applications.

Key informant discussions were also used in data collection and data analysis was conducted using manual methods.

RESULTS AND DISCUSSION

Age of the respondents varied 16 -31, and almost all were well educated having passed GCE O/L examination. Nine out of 22 (41%) had studied agriculture as a subject in the school. The respondents were mainly in floriculture business and home gardening. Many school going YFC members were helping their parents for the family farm/ floriculture business. This information will be used when designing the mLearning lessons so that it is appropriate with their present knowledge level and interests. Sixteen members (72%) had mobile phones in their possession while the others had CDMA connections for the family. Although this is lower than the present market penetration of mobile phones in Sri Lanka, this can be considered as a very favourable value considering the fact that only the school going YFC members some (27%) YFC members were still school going.

The major mobile phone service providers were Mobitel and Etiselat two private companies. The average monthly expenses for the phone LKR 440 (range LKR 150 - 3000). The monthly expenses indicated the possibility of them committing for a mLearning programme. Table 1 shows their use of the different features available in the mobile phone.

Frequency of use	(%) of subjects using the various features available in mobile phones (n=22)				
	Voice calls	SMS	Camera	Radio / music	Internet access
Rarely	4.55	9.09	18.18	18.18	18.18
Sometimes	40.91	36.36	36.36	27.27	13.64
Often	50.00	36.36	0.00	4.55	4.55

Table 1: Use of the different features in the phone

The types of the phones used among the YFC members were investigated. Only one member had a smart phone, while six members had java enabled phones.

Almost all the respondents (95%) were willing to join with a mLearning programme to learn agriculture related information as their use of available agriculture information sources was limited. Only 5 members had called the Toll Free Agriculture Advisory service implemented by the Government Department of Agriculture and only eleven members (50%) had visited Cyber Agriculture Extension Centers available locally. The members were willing to use a mLearning platform which could be used to interact with the members as well as the instructors.

CONCLUSIONS

The findings of the preliminary survey suggests that it is possible to introduce mlearning among the study community as they are educated, familiar with the necessary technology, and most importantly have favourable attitudes towards using mobile phones to learn agriculture.

Based on the findings of the preliminary study we wish to design, implement and evaluate mlearning activities for the YFC members in the light of activity theory. The main concepts of activity model will be used in the various stages of development process and we try to capture the dynamics of mlearning situation using the activity model. Other methodologies, such as participatory methods and co-design methods will be used together with the activity model.

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