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Mobile applications fostering situated learning opportunities in Alternative Agro-Food Networks

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Abstract – **alternative agro-food networks (AAFNS) represent new forms of collaboration between producers and consumers. They provide a space where a variety of information and knowledge might be exchanged during direct interactions among their actors. nowadays, mobile applications have the potential to support such information/knowledge exchange. The study reports main results from a review of mobile apps oriented to AAFN. It explores their role in increasing and extending situated learning opportunities in AAFNS. Results of the research might be used to conceive of, design and develop mobile services to help AAFNS to scale up by supporting mutual understanding and collaboration among producers and consumers.**

INTRODUCTION

The concentration, industrialization and globalization of the Agro-Food System led to uniformity in agricultural production and significant ecological impact. This development strategy resulted in the crisis of trust in mass-produced products among consumers and placed farmers in an unsustainable economic condition. To overcome limits of mainstream agro-business system, many initiatives aimed at shortening the physical distances between producer and consumer (geographical proximity), and the number of intermediaries in the food supply chain (social proximity) have emerged in many countries. These initiatives, that go under the umbrella term AAFNs (Goodman, 2004), provide a space where a variety of information and knowledge related to agriculture, the rural economy, the environment, food production, and healthy eating might be exchanged during the face-to-face interactions between consumers and producers (Fonte, 2008; Volpentesta, et al., 2013).

Mobile applications can provide ubiquitous and context-aware services extending such knowledge exchange and enhancing situated learning opportunities (SLOs) (Lave & Wenger, 1991; Wu, et al. 2013) for producers and consumers. Hence, they might foster mutual understanding and collaboration in AAFNs.

The paper aims to explore the value of the use of mobile applications and services to increase SLOs in AAFNs. In particular, the key research questions are:
- What is the role of apps in increasing SLOs in AAFNs ?
- Can M-Services increase SLOs before, during and after a face-to-face interaction in an AAFN?

The study reports results of a review of apps oriented to AAFNs.

The rationale of the research is to maximize the chances of conceiving of new mobiquitous services able to improve the mutual understanding and collaboration among producers and consumers in AAFNs, by reinforcing social capital of local food systems

SITUATED LEARNING OPPORTUNITIES IN AAFNS

Consumers and producers engaged in AAFNs operate in a setting where the process of gaining knowledge is contextualized in an experiential framework and learning is a social process that is situated in a specific context and embedded within a particular social and physical environment. This study models a SLO in an AAFN as a triplet of components that are interrelated: face-to-face interaction context (F2FI), knowledge and information source (KIS), and learning content domain (LCD). Mobiquitous services are able to "augment" SLOs by making use of knowledge structures and information on the context of the interaction (user's profile, time, location) to better address users' needs.

METHODOLOGY

The review was conducted by searching apps explicitly oriented to AAFNs on the two main application stores App Store (IOS), and Google Play (Android). Only apps showing mobiquitous features and explicitly claiming to support any form of AAFN were included in the sample. Data were collected from May to June 2016 from the app description and in most cases by testing the apps too. Functions of each app in the sample were classified taking into account both the information flow direction (reporting, informational, or interactional) and the function scope (social oriented or decision support oriented).

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Moreover, following the model for SLO, both apps' functions and apps as a whole have been mapped on a function analysis space taking into account if messages' contents were categorized, the use of context items (users' identity, time and location of interaction) and the KIS width (personal, organizational, AAFN's community and external community).

FINDINGS AND DISCUSSION

The sample of this study included 126 apps.

As regard social oriented functionalities 46 apps (36%) apps provide social reporting function, 35 apps (28%) provide social reporting and social searching functionalities and 1 app provide social reporting, social searching and social pushing functionalities. Moreover, 15 apps (11%) appeared to be, more than the others were, able to facilitate SLOs. These apps implicitly detect users' identity, time of the interaction and (in 5 cases) its location. Detected data enable the apps to give the user a more effective way to create and maintain social relationships as well as sharing knowledge with other people who have needs, interests, or problems similar to those of the users themselves, and are at the same time related to same context. Hence they increasing and extend SLOs, in particular before and after the F2FIs. As regards decision support oriented functionalities, 71 apps (56%) provide decision support reporting; 126 apps (100%) provide decision support searching; 2 apps (22%) provide decision support pushing and 40 apps (32%) provide task automation functionalities such as the e-commerce functionalities. The analysis of data showed that even if all the apps in the sample offer contextualized research functionalities of categorized contents, mainly useful to extend SLOs before the F2FIs, just 7 apps use the time of the interaction to provide information such as the farmers' markets open at the time of the request, or the food in season. Moreover, from the 62 apps offering the opportunity to locate the nearest farmers' markets, just 7 provide information on producers participating to them and products available at the farmers' markets. Furthermore, just 20% of apps leverage on users' preferences to provide contextualized content that could extend SLOs after the F2FIs in AAFNs, as well as just 3 apps uselocation, users' identity and time to send to users "push notification" that could improve the SLOs before and while the F2FIs in AAFNs.

CONCLUSION

Although, mobile technologies offer the chance to capture and use large sets of user's context data to support and extend SLOs in AAFNs, reviewed apps have a restricted context awareness capacity and use of contextual data appears very limited too. Despite it is widely recognized that social interaction plays a fundamental role in situated learning process (Lave & Wenger, 1991) the study showed that only a restricted number of apps provide functionalities that could support social interaction for such a process. Similarly, the support of decision support oriented functionalities resulted to do not take advantage of all the opportunities offered by mobile technologies to provide mobiquitous services able to increase and extend SLOs in AAFNs .

The research results can be used to design and develop M-services that, overcoming limits of reviewed apps, could be better able to support Situated Learning in AAFNs in an effective way, and allowing re-connection and close communication among agro-food producers and consumers creating new market opportunities and favorable conditions for cooperation and innovation within the local food system.

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