
Designing ICTs for Social and Situated Learning Systems at the Margins

Linus Kendall

Sheffield Hallam University
Howard St, Sheffield, South
Yorkshire S1 1WB, GB
linus.e.kendall@student.shu.ac.uk

Abstract

While there is a great need among small-holder and marginal farmers for knowledge and information about how they can improve their agricultural practice, present information and communication technology (ICT) based interventions suffer from a lack of explicit consideration of the assumptions with regards to knowledge and learning they implement. This project proposes to study the design practices as well as ICTs that can support social and situated learning for sustainable agriculture in West Bengal in India.

Author Keywords

situated learning; social learning; ICT for agricultural development; ICTs for social and situated learning; knowledge management

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous;

Introduction

Information and communication technology (ICT) is increasingly applied to rural and agricultural development – especially in light of the massive increase in availability of mobile phones across the Global South [18,30]. When it comes to the role ICTs can play, providing information and knowledge across

spatiotemporal distances has unsurprisingly been identified as critically important [2,22] and has been suggested as especially relevant in the light of the limitations of traditional agricultural extension services [15].

To that end ICT-enabled services have been designed to help smallholder farmers improve information flow in supply chains [3,7,33], learn new practices [11,19,21], receive advice [10,29] and access information about markets, weather and other issues of concern [2].

However, the success of ICT initiatives for rural development has been mixed [1,8,12,14,20] and where they do result in adoption of, for example new agricultural practices, they primarily benefit relatively affluent or educated farmers [3,16].

The knowledge management challenge

One of the challenges these interventions face is an incomplete consideration by researchers and implementers behind them of the approach to knowledge management they either explicitly or implicitly implement [34]. While there is a real need among farmers for better access to various sources of knowledge and information – whether it is about weather, cropping systems, input usage or any of the other areas impacting their livelihood – it is necessary to recognise that the way in which farmers learn, organise knowledge as well as make sense of new information is embedded in a social system of situated practice [28]. Furthermore, the primarily oral cultures of especially small scale farmers result in marked differences in the way knowledge is acquired and organised [6,23,32].

The dominant discourses that have been at the centre of development of agricultural practice in many parts of the developing world also reflect this knowledge divide. Agricultural extension and development services have relied on ways of knowing and learning that is different from and alien to the context of small-scale farmers. This places small-holder farmers at the margins of the new agricultural knowledge system further contributing to their social and economic marginalization. Knowledge in this system is often viewed as generated at the core (government service, agricultural and commercial research centres) and then disseminated to the peripheries (small and marginal farmers).

Knowledge Management at the Margins

As designers of information and communication systems working across borders – whether within our own countries or across geographic, linguistic and cultural divides – we need to pay attention to the ways in which ideas about learning and knowledge becomes embedded as part of our interventions.

This is not least evident when considering knowledge management systems inspired by those originally developed for corporate needs. The role of ICTs can easily become one of enabling better dissemination of disconnected fragments of “knowledge” from core to periphery [34] serving as a tool to further more effective marginalization as well as disconnection between what is “known” and the situated practice of the “knower”. In designing interventions intended for knowledge management and learning for these communities instead an approach to knowledge management that is based on experiential [24], situated [25] and social [31] learning practices focusing on the “knower” is therefore needed.

Developing ICTs for social and situated learning across borders

Working in the highly vulnerable agricultural region of the Sundarbans, West Bengal, India alongside a partner organisation (www.drcsc.org) this project aims to explore the development of ICT support for social and situated knowledge management and learning practices. It will build on ICT tools which already incorporate elements of social and situated learning [5,17,19,26,27,29] and aim to further develop forms of ICTs for enabling such practices as well as inform relevant design approaches.

Crossing borders through collaborations between universities in the Global North and partners in the Global South already raises multiple questions with regards to HCI practice [4,9]. However, when looking at situated learning systems like that of sustainable agricultural practice in West Bengal we also need to consider the crossing of internal borders between different groups such as smallholder farmers, non-profits and government. This requires challenging who and what is perceived as at the core and the periphery of the knowledge system as well as negotiating between different perceptions of what knowing and learning is.

This project will seek to find ways in which a participatory process of ICT development can serve to enable this process and expand the scope and reach of social and situated learning systems across such borders. In relation to social and situated learning ICTs have an especially important role to play as boundary artefacts and part of boundary practices for different communities of practice [35]. It may also serve as tool for various stakeholders when attempting to re-shape

the relationships between cores and peripheries. In this project it is the aim that ICTs can be used to build shared understanding of and collective action around issues such as sustainable agricultural development and climate change adaptation [13].

Approaching the implementation of ICTs for situated and social learning systems finally also requires an active effort on the part of HCI4D practitioners and researchers to become members of and active participants in the very learning system they are designing for. Both our design practices and the artefacts that result from them will need to become an embedded part of the learning system itself. A better understanding of this process and the role of the HCI researcher and practitioner in it is one of the aspired outcomes of this project.

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