



Designing Mobile Learning to Support Public Food Literacy: Constructivist Pedagogies and ICT Ecologies

Jessica K. Frawley

University of Technology,
Sydney (UTS)
15 Broadway, Ultimo, NSW
2007, Australia
Jessica.Frawley@uts.edu.au

Jim Underwood

University of Technology,
Sydney (UTS)
15 Broadway, Ultimo, NSW
2007, Australia
Jim.Underwood@uts.edu.au

ABSTRACT

Food is an essential physiological, cultural and social component of human life. How food is produced and consumed has dietary, cultural, environmental, ethical and societal consequences. Despite the central role that food plays within individual lives, public understanding of food and the wider agro-food system varies; much of this existing knowledge is acquired informally in kitchens, homes and gardens. Educational and community initiatives, such as learning gardens and food literacy programs, have arisen in response to the perceived issues associated with an industrialized and distanced mainstream food system. Though face-to-face and community learning are important for addressing food literacy, such schemes have their limitations. With mobile learning increasingly identified as a means of facilitating dialogic, situated and distanced learning in informal settings, there is an opportunity for mobile learning to support public food literacy and extend existing understandings to a wider learner population. This paper describes the educational design of the Red Hen Recipes Food Literacy Project. This paper presents a brief overview of the literature and how the Red Hen Recipes project is designed to support mobile and place-based learning. This research posits the way in which mobile learning can be designed and extended to address a public educational need with a more diverse community learner population.

Keywords

Mobile learning, informal learning, food literacy, user-generated content

INTRODUCTION

Urbanization, population growth, lifestyle changes (Anderson 2000) and the wider industrialization of the mainstream food system (Blay-Palmer 2008) have combined to create a knowledge gap between those people who produce food and those who consume food. Though food production is frequently perceived to be a rural issue and agriculture a specialized rural activity (Pothukuchi & Kaufman 1999), public food scares can undermine public trust in a system that is largely obscured from view (Anderson 2000) and in the institutions that insure such a system is safe. As concerns about the food safety, food security, and the ethical and environmental sustainability of particular agricultural practices converge, alternative approaches arise to address these needs. Alternative Food Networks (AFN) that include farmers markets, community gardens and other alternative food provision systems can be interpreted as networks and approaches that deliberately counter or address issues perceived with the mainstream food system. In addition to AFNs, there are also educational initiatives and programs. Within Australia the Stephanie Alexander Kitchen Garden Program gets primary school students engaged in growing food in a learning garden and cooking this in the kitchen (Block et al. 2012; Stephanie Alexander Kitchen Garden Foundation n.d.). Though there has been some uptake of this situated learning within *formal* education, much of our understandings about

food is acquired within informal and community learning spaces. Such learning may occur as part of a community initiative such as those run by coordinated groups like the Slow Food Movement (Petroni 2001; Slow Food Australia n.d.) and Youth Food Movement (Youth Food Movement n.d.). Community and urban gardens may also provide spaces for community-based informal learning. However, outside of the fixed places and organized schemes, individual understandings about food remain the result of an ongoing informal, situated and lifelong process that begins with learning to eat, to cook and to acquire food in different places. Formal education, as it stands, is insufficient in addressing such a diverse learner population.

Food Literacy

Whilst the agro-food literature often acknowledges the importance of learning its focus is typically on the systems, processes and human experiences associated with alternative food networks. This research is rarely explored from an educational or pedagogic perspective. However, recently the emergence of the term ‘food literacy’ has heralded a more concrete acknowledgement of public learning needs and the educational focus of community food projects. Food literacy can be broadly defined as the understandings, knowledge and skills relating to an individual’s food interactions. However, this emergent term has been defined and applied in varying ways. Some definitions emphasize nutritional and dietary goals (Vidgen & Gallegos 2011, 2012) whilst others extend this literacy notion to the ‘impact of your food choices on your health, the environment, and our community’ (Food Literacy Center n.d., para 6). In this paper we adopt the broader definition that is inclusive of environmental and community concerns. Food literacy has become the explicit target and focus for many schemes in both Europe (e.g. BEST Institut für berufsbezogene Weiterbildung und Personaltraining 2006), the USA (e.g. Food Literacy Center n.d.; Harvard Food Literacy Project 2013; The Food Literacy Project 2010) and Australia (Cullerton, Vidgen & Gallegos 2012). Though terminology such as food literacy enables more explicit and direct articulation of this learning need, the vast body of knowledge and personal experiences relating to food remain informally acquired and outside of the perimeters of such projects and initiatives.

The Affordances of Mobile Learning

Mobile learning (m-Learning) has been described as the processes of coming to know conversations across multiple contexts among people and personal interactive technologies (Kukulka-Hulme 2007; Sharples, Taylor & Vavoula 2007). With calls for greater dialogue between various parties across the food system (Anderson 2000), m-Learning may offer one way in which to facilitate new learning conversations with diverse populations. Especially within the context of public food education, new technologies and cultures of use may better support learning that is situated *outside* of formal learning institutions: ‘new technologies, such as the mobile/cell phone, and their widespread availability and use, affect cultural practices and enable new contexts for learning’ (Pachler et al. 2010, p. 13). With the rise in ownership of mobile devices, learning is no longer delimited by a physical location (Kukulka-Hulme 2005). Unsurprisingly, m-Learning has been heavily linked to informal learning that occurs outside of the educational institution (e.g. Kukulka-Hulme 2005; Laurillard 2010; Pachler 2010; Pachler et al. 2010; Traxler 2007). Despite this, the majority of empirical studies are conducted with learners already enrolled in primary, secondary or tertiary education. There have been calls from leaders in the field for m-Learning to explore more diverse learner populations such as work-based, community-based, distance and life-long learners (Kukulka-Hulme 2013). Some early mobile public awareness and education initiatives in the developing world have demonstrated both the power and feasibility of m-Learning to be applied to other contexts and learner groups (Traxler & Dearden 2005, p. 1; United Nations Education Program 2011). For m-Learning public food literacy offers a unique context and challenge in addressing the needs of a diverse learner group whose understandings and experience of food cannot be separated from personal factors such as age, taste, dietary needs, culture, and socio-economic background. For public food literacy, m-Learning may extend understandings to populations not usually targeted by

existing programs. In exploring the nexus between public food literacy and m-Learning, both fields stand to benefit.

RESEARCH GAPS AND OPPORTUNITIES

Given the largely informal, situated and lifelong process through which people come to understandings about food, formal educational initiatives, by themselves, remain insufficient. With its affordance for situated and field-based learning, m-Learning provides an opportunity for addressing public food literacy and extending m-Learning research to a wider and more diverse learner population.

PROJECT DESIGN: RED HEN RECIPES

As part of an exploratory research project into the affordances of mobile learning for food literacy, this paper describes the socio-technical and pedagogic design of the ‘Red Hen Recipes’ (RHR) mobile and blended learning project (Figure 1).

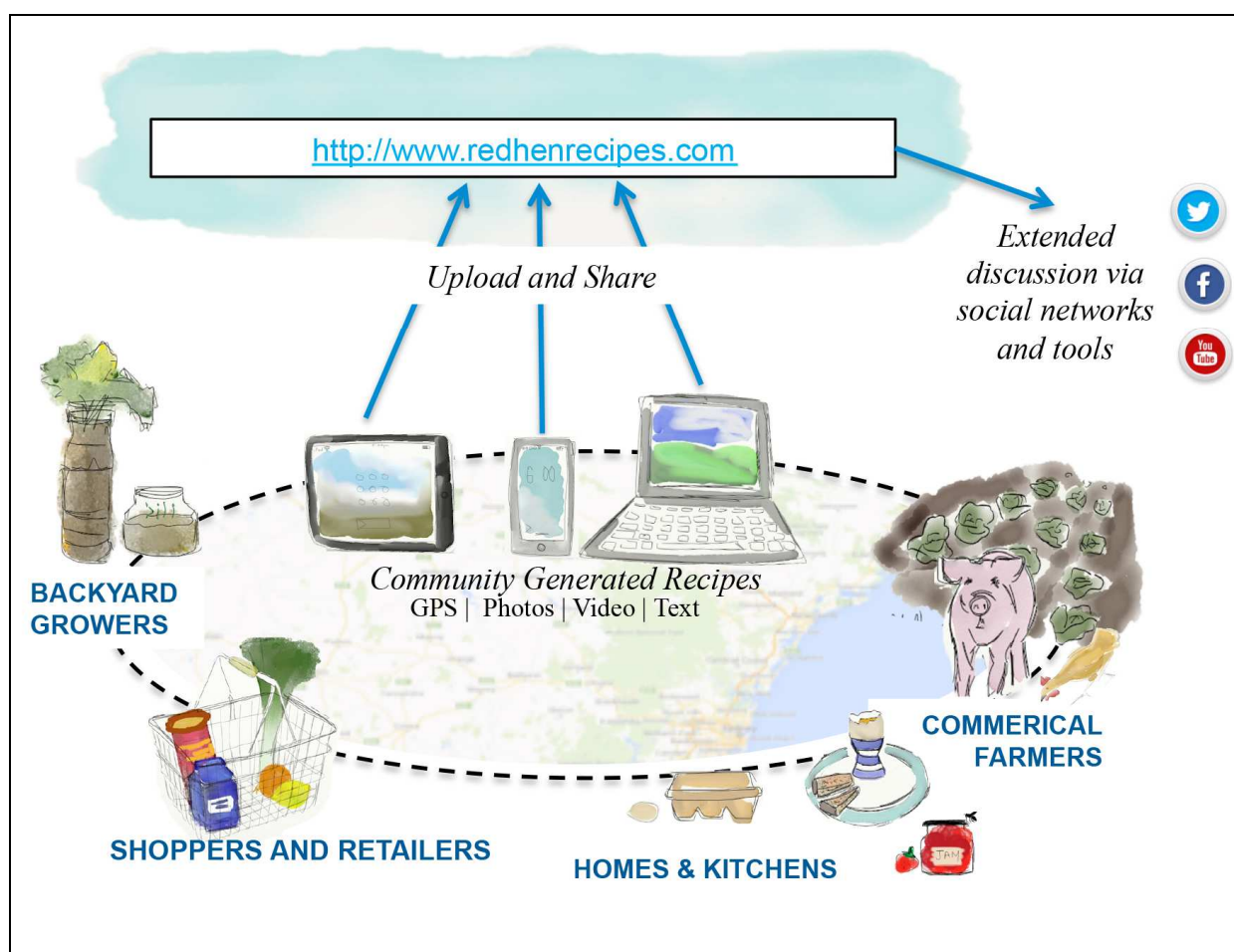


Figure 1. The Red Hen Recipes Project

Learning Activities

Members of the Red Hen Recipes community engage in a range of learning activities (Figure 1.). Firstly, learners create their multimodal and augmented “Red Hen Recipe” by tracing a raw ingredient from farms, gardens, and markets through to a recipe in the kitchen and information on eating this food. The Red Hen Recipe website (www.redhenrecipes.com) supports users in creating and sharing their recipes with photos, video, text and GPS data created by the learner using different devices within a range of mobile contexts and environments. Community members can browse the

site and explore other members' recipes, and further dialogue is facilitated through the sharing of this content through social networking platforms such as Pinterest, Facebook, Twitter and Disqus.

Socio-Technical Design and ICT Ecology

Though learners may create and gather content in a range of mobile contexts, their learning is supported by a wider personal ICT ecology that may include laptops, tablets, digital cameras and other devices (Brady & Dyson 2010). In the case of user-generated content, learner's *mobile* practice and learning have been found to be deeply entwined and supported by other, non-mobile ICTs (Frawley & Dyson 2014). This concept of mobile learning is supported by the Red Hen Recipes cross-browser (e.g. Internet Explorer, Chrome, Safari) and cross-platform (e.g. OSX, iOS, Android, Windows) design.

Pedagogic Design

The project is designed to support dialogic learning interactions. This approach aligns with the way learning has come to be both conceptualized and practiced throughout the C20th and C21st. In opposition to previously dominant positivist and post-positivist philosophies of education that assume an objective knowledge available to be transferred, pragmatic (e.g. Dewey 1966) and constructivist (e.g. Vygotsky 1986) theories of learning offer a way of thinking about learning that reframes the role of the learner. Meaning is something garnered through a more interpretive, individualistic interaction between the learner and the world around them (Dewey 1966). In adopting an interpretive and constructivist approach the Red Hen Recipes project acknowledges the subjective and pre-existing understandings that all people bring to a food literacy project such as this one. In addition to changes in theoretical understandings of learning, there have also been changes to our socio-technical landscape. User-generated content (UGC) platforms, such as YouTube and Facebook, give rise to a participatory culture (Jenkins et al. 2009) in which lay people can create and publish their own content. Indeed within a socio-technical landscape that fosters dialogue and interactivity, over monologue, there is the opportunity for technology and our understandings of learning to combine to facilitate meaningful conversations around food that offer more than just didactic content distribution.

CONTRIBUTIONS AND CONCLUSIONS

The design of the Red Hen Recipes project is structured in a way to use mobile technologies in conjunction with the wider ICT ecology to support situated and informal learning interactions within a wide range of contexts. In this project individual learning that takes place in gardens, farms, kitchens and dinner tables can be shared with a wider audience. Participating in this community, either as a creator or a user of these online recipes, may extend dialogic and exploratory learning interactions to individuals not already included in formal food literacy or learning garden initiatives. Furthermore, by extending the reach of this discussion, m-Learning may allow for greater inclusivity of different voices and perspectives.

REFERENCES

- Anderson, W.A. 2000, 'The future relationship between the media, the food industry and the consumer', *British Medical Bulletin*, vol. 56, no. 1, pp. 254-68.
- BEST Institut für berufsbezogene Weiterbildung und Personaltraining 2006, *Food Literacy - A New Horizontal Theme in Adult Education and Counselling*, BEST Institut für berufsbezogene Weiterbildung und Personaltraining, Vienna, Austria.
- Blay-Palmer, A. 2008, *Food fears: From industrial to sustainable food systems*, Ashgate Publishing Group, Oxon.
- Block, K., Gibbs, L., Staiger, P.K., Gold, L., Johnson, B., Macfarlane, S., Long, C. & Townsend, M. 2012, 'Growing community: The impact of the Stephanie Alexander kitchen garden program on the social and learning environment in primary schools', *Health Education and Behaviour*, vol. 39, no. 4, pp. 419-32.
- Brady, F. & Dyson, L.E. 2010, 'A comparative study of mobile technology adoption in remote Australia', *Seventh International Conference on Cultural Attitudes towards Technology and Communication*

- (CATaC), Vancouver, Canada, eds F. Sudweeks, H. Hrachovec & C. Ess, Murdoch University, Australia, pp. 69-83.
- Cullerton, K., Vidgen, H. & Gallegos, D. 2012, A review of food literacy interventions targeting disadvantaged young people, Queensland University of Technology, Brisbane, Queensland.
- Dewey, J. 1966, *Democracy and education: An introduction to the philosophy of education*, Free Press, New York.
- Food Literacy Center n.d., What is food literacy?, viewed 3 October 2014, <<http://foodliteracycenter.org/what-is-food-literacy/>>.
- Frawley, J. & Dyson, L.E. 2014, 'Mobile literacies: Navigating multimodality, informal learning contexts and personal ICT ecologies', in M. Kalz, Y. Bayyurt & M. Specht (eds), *Mobile as a Mainstream- Towards Future Challenges in Mobile Learning: 13th World Conference on Mobile and Contextual Learning, mLearn 2014, Istanbul, Turkey, November 3-5, 2014, Proceedings*, Springer International Publishing Switzerland, pp. 377-90.
- Harvard Food Literacy Project 2013, About, Harvard, viewed 12 November 2013, <<http://www.dining.harvard.edu/flp/about.>>.
- Jenkins, H., Purushotma, R., Weigel, M., Clinton, K. & Robison, A.J. 2009, *Confronting the challenges of participatory culture: Media education for the 21st Century*, The MIT Press, Cambridge, Massachusetts.
- Kukulska-Hulme, A. 2005, 'Introduction', in A. Kukulska-Hulme & J. Traxler (eds), *Mobile learning: A handbook for educators and trainers*, Routledge, Oxon, pp. 1-6.
- Kukulska-Hulme, A. 2007, 'Mobile usability in education: what have we learnt?', *The International Review of Research in Open and Distance Learning*, vol. 8, no. 2, viewed 22 May 2011, <<http://www.irrodl.org/index.php/irrodl/article/view/356/879%3E>>.
- Kukulska-Hulme, A. 2013, 'Mobile learners: Who are they and who will they become?', in Z.L. Berge & L.Y. Muilenberg (eds), *Handbook of Mobile Learning*, Routledge New York, pp. 395-416.
- Laurillard, D. 2010, 'Foreword', in G. Vavoula, N. Pachler & A. Kukulska-Hulme (eds), *Researching mobile learning: frameworks, tools and research designs*, Peter Lang, Oxford, pp. ix-xi.
- Pachler, N. 2010, 'Research methods in mobile and informal learning: some issues', in G. Vavoula, N. Pachler & A. Kukulska-Hulme (eds), *Researching mobile learning: frameworks, tools and research designs*, Peter Lang, Oxford, pp. 1-15.
- Pachler, N., Bachmair, B., Cook, J. & Kress, G. 2010, *Mobile learning: Structures, agency, practices*, 1st edn, Springer, New York.
- Petrini, C. 2001, *Slow food: The case for taste*, trans. W. Mc Cuaig, Columbia University Press, New York.
- Pothukuchi, K. & Kaufman, J.L. 1999, 'Placing the food system on the urban agenda: The role of municipal institutions in food systems planning', *Agriculture and Human Values*, vol. 16, pp. 213-24.
- Sharples, M., Taylor, J. & Vavoula, G. 2007, 'A theory of learning for the mobile age', in R. Andrews & C. Haythornthwait (eds), *The SAGE handbook of e-learning research*, Sage, London, pp. 221-47.
- Slow Food Australia n.d., *Slow food in Australia: Good, clean and fair food*, viewed 13 March 2013, <<http://slowfoodaustralia.com.au/>>.
- Stephanie Alexander Kitchen Garden Foundation n.d., About the Program, viewed 17 March 2013, <<http://www.kitchengardenfoundation.org.au/about-the-program>>.
- The Food Literacy Project 2010, The Food Literacy Project, viewed 13 November 2013, <<http://foodliteracyproject.org/>>.
- Traxler, J. 2007, 'Defining, discussing and evaluating mobile learning: The moving finger writes and having writ...', *The International Review of Research in Open and Distance Learning*, vol. 8, no. 3.
- Traxler, J. & Dearden, P. 2005, 'The potential for using sms to support learning and organisation in Sub-Saharan Africa', paper presented to the Proceedings of Development Studies Association Conference, Milton Keynes.
- United Nations Education Program 2011, *Mobile Mentor/I-Call Pilot Project Workshop*, UNEP, Nairobi, Kenya.
- Vidgen, H. & Gallegos, D. 2011, *What is food literacy and does it influence what we eat?: a study of Australian food experts*, Queensland University of Technology, Brisbane, Queensland.

- Vidgen, H. & Gallegos, D. 2012, Defining food literacy, its components, development and relationship to food intake: a case study of young people and disadvantage, Queensland University of Technology, Brisbane, Queensland.
- Vygotsky, L. 1986, Thought and Language, trans. A. Kozulin, The MIT Press, Cambridge, MA.
- Youth Food Movement n.d., About, viewed 4 July 2014, <<http://www.youthfoodmovement.org.au/about-yfm/>>.