Self-directed learning environments of farm businesses

Case studies in Queensland

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Introduction and research value

Rural business managers are increasingly juggling economic and environmental pressures as they strive to optimise productivity and maximise profitability for their farm business. This research explores the self-directed learning environments of 16 grain and cotton growers in order to inform future development of digital learning support tools.

Rural industries have a wealth of available information online and formal industry training activities is slowly moving online. Examples are Sheep and Wool industry webinars (Leading Sheep 2013, Futurebeef 2013) and there are collections of digital information and training tools available for specific industries through Youtube videos, audio programs and CD's. These are available to farm managers online and anytime.

Field-based workshops, farm walks and group activities serving as training and participatory group learning are organised by Research and Development providers and agricultural organisations on a timely manner through the season in a range of locations throughout Queensland.

These resources and activities, both online and in the field provide and facilitate learning opportunities for farm managers largely from a community or mass approach. Little focus appears to occur from the farmer's perspective in terms of self-directed learning, and yet decision making for individual farm management occurs at the individual farm business level. An exploration of the learning and information environments at this level will help understand farmers' interface with and use of industry-based online information and services. This will assist future development of digital systems of information and learning support that enable farmers to further personalize their information seeking and learning.

Understanding of farmer self-directed learning environments may have additional implications in terms of the potential development of pathways from self-directed learning through to formal learning, and potentially higher education using digital personalized learning.

Literature

There have been few studies of individual farmer approaches to learning and even less in relation to exploring and describing learning environments. Ingram (2010) is one study that identified technical and social dimensions in farmer learning about reduced tillage. The importance of learning at the individual farm level was highlighted, along with experimentation and the use of networking to validate and reflect on this. This social dimension to learning was hindered by the fact that some farmers were not prepared to share information about their experiences due to fears and competitiveness.

Kilpatrick and Rosenblatt (1998) found that farmers may prefer to actually seek information themselves in their learning (i.e. in a self-directed sense) rather than attend training. They found independence, familiarity, preference for known sources, lack of confidence and fear were potential reasons.

Eastwood (2008) also highlighted the individual farmer in his study of dairy farmers learning about precision farming systems. He found that the focus was on the technology rather than farmers as end users. He found that learning processes within precision dairy systems did not go far enough in empowering farmers to be self-learners.

Franz et al (2010) identified the need for focusing on local learning opportunities and opportunities for making connections (with experts) as well as the importance of farmers' values. They suggested a need to update information about farmer learning preferences as information technologies change.

Previous studies of farmer learning are therefore highlighting the importance of learning at the individual farm level in a self-directed sense. A more extensive understanding of this learning environment across a wider range of learning topics will add value in considering development of innovative digital technologies with possible wide application.

This paper reports on the exploration of farmers' self-directed learning environments where individuals are learning about varying topics.

Research approach

The research took the form of a collective case study of 16 purposively chosen farmers within the grain and cotton industries in south Queensland. The grain and cotton industries were chosen because of their significance to rural Queensland and because the industries had significance across a range of regions within Queensland (including the relatively isolated south western Queensland and central Queensland regions).

The study used qualitative research methods to identify key descriptors of the learning environments within which participants were undertaking self-directed learning projects. A constructivist approach (Holstein & Gubrium 1994) allowed for participants to take centre stage.

Longitudinal studies based on semi-structured interviews and learning and information-seeking protocols were performed over an 18-month period. Interviews and observations were the key methodological tools for data capture as these methods would enable contextual issues to be captured. Data collected from interviews and protocol analyses was recorded in the form of transcripts, and along with field notes provided the basis for analysis in terms of pre-set categories and to identify emergent categories.

Research Findings

Exploration of participants' learning environments

The context within which each participant was learning was highly specific in terms of their situation, need for familiarity, readiness to learn, need for it to be experience-based and social, limitations and their level of isolation. Each of these is briefly discussed with participant quotes.

Sense of situation

Learning projects chosen by participants were highly specific in their relation to individual farms, soil types, equipment, skills and labour and the information sought was quite specific.

An example is one learner who was establishing a permanent bedding system for his cotton crops, but he saw his information needs as very specific because of his combination of farming equipment and the various widths of his equipment. *'It's the first year, and I'm making a few refinements, semi permanent bedding….I'm always thinking of things that are relevant. I haven't talked to anyone else, but I would like to talk to them if they were farming at 24 m strips, even if they were at Moree.'*

Another was exploring nitrogen management in his cropping system indicated that he did not see information from outside his local area as relevant: *'I'll only study [experiences] in our area, Nindigully and the Darling Downs are too far away.' He* does not take notice from a DPI trial 300 km away as he considers it irrelevant.

Experience-based

Participants' own experiences and information about the experiences of their peers formed a major information source for their learning and this strongly defined the environment within which they were learning. Information sought was mostly about others' experiences.

'[I'm] really trying to work out a crop rotation. Six months [ago] I designed one, now [I've] thrown it out the door, [it's] not practical, …… A lot is based on this harvest, grain out of lucerne.'

Jim: '*We belong to Conservation Farmers [group] We used demonstrator planting equipment. We didn't plan a range of [information] sources, but it was a range of experiences.'*

Social

Participants wanted to supplement their experiential learning with social learning approaches. They wanted to look to their personal familiar contacts and their experiences in seeking information to support their learning. These contacts included family, friends and peers, consultants and advisers. Contacts were of specific value for participants as they provided new information, a familiar experience and could share experiences, perceptions and reactions.

'We've been talking to a network of people, everybody is in the same situation. People are at their wits end, they don't know which way to go. We're talking to others even more so now, comparing our end of financial year figures and production. We've all produced a lot of grain and we're doing a lot, but we haven't made any money. Our son, Michael has a number of people and he spends lots of time on the phone at night discussing what they're doing.'

Familiarity

Participants chose methods of learning and accessing information with which they were familiar and comfortable. For most participants, this meant learning largely in isolation, even when their neighbours may have been learning about the same issue. For others, this meant relying on familiar contacts rather than seeking out new contacts or information that may have been more useful.

One participant appeared to have been learning largely in isolation from others, relying on articles he had read and the help of his family's experiences rather than speaking with local farmers.

Another relied on his own experience mainly in his farm projects. When he needed new information, it was largely from people he knew from around the district and did not appear comfortable with the idea of seeking information from people or sources with which he was unfamiliar.

Timeliness and readiness

Participants exhibited varying stages of readiness to learn or access information with respect to new approaches. Reasons for this were both personal and seasonal.

'We'd like Futureprofit [farm management workshop series] all over again. We'd just bought the new farm when the workshops were on and we didn't have any financial records or didn't know what grew on our farm. Now I'm ready for Future profit…. The future profit approach was good. If you didn't do what you wanted at the course, it was your own fault, there was plenty of opportunity to change the program. We just weren't ready at the time.'

Isolation

The highly specific nature of learning projects in terms of information needs, comfort, readiness and commitments, and, in some cases, coupled with the physical isolation of properties, meant that some participants were often learning in isolation.

'Our local Queensland Graingrowers Association [folded]…everyone has been sourcing their own information (for their learning). There's not many rural meetings unless there's a field day….I could go to a lot more field days.'

Limitations on learning and information seeking

Current personal work and time commitments and dry seasons had limited most participants in their ability to progress with learning and information seeking.

'With cotton there's meetings and seminars etc. If I was only a manager I could go, but I've got to do all the work. Unless it's easy and quick and simple, your time is too precious and if you get on [the internet] and can't find (anything to help you with your project)..you give up.'

Conclusion

The strong focus on participant's property, farming activities, and business in participant's learning meant that their physical, social and financial resources contributed to the individual learning environment and information needs. This has implications for potential development of digital learning tools in that these need to be defined and form the basis for the learning content. Tools enabling farm and farmer parameters to be entered prior to execution may contribute to supporting this in learning processes. The general information and factsheet approach of many agricultural organisations could be replaced with apps enabling input of specific farm characteristics.

Learning was strongly characterized by participants having experiences and sharing these. Digital tools that enable the representation of these (such as case studies and images, Youtube) and the learner's reflections on these would potentially add value to farmer self-directed learning.

Learning via social means was a very important facet in this study. Potential new digital learning tools should support dialogue and sharing of experiences, activities and outcomes, and allow users to widen their community for learning as suggested by Kilpatrick and Rosenblatt (1998).

The familiar and timely focus of participants learning was evidenced in the fact that participants largely learn through familiar activities and processes within their comfort zones. It is suggested that any development of digital learning tools planned for farmer use should be developed by and with farmers, and training and support provided to enable a familiar learning environment. Eastwood (2008) highlights co-development of technology.

Limitations

This study was a collective case study of 16 participants farming within the industries of grains and cotton in south Queensland in the early 2000's. The highly situational nature of participants' learning may mean that these findings have limited application to other locations and industries. The similarity of findings with other studies in other locations and times (Ingram 2010), in other industries (Eastwood 2008) may point to some transferability.

The use of information technology applications now available to assist farmer learning (Youtube, social media, blogs) which did not exist at the time of the research may have played a role in developing new farmer learning approaches and in defining new farmer learning environments.

References

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