

INTENTIONAL LEARNING: INTERPLAYS BETWEEN FARMERS AND SERVICE PROVIDERS

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Abstract

Target 10 is a statewide dairy industry extension program delivered through the Department of Natural Resources and Environment in Victoria, Australia. Over 40% of dairy businesses in the state have been involved in Target 10 and such success has resulted in pressure for continued innovation and development in the area of dairy extension. The Learning Plan Project has been commissioned by the Dairy Research and Development Corporation to look at the intentional learning behaviour of farmers as it relates to grazing management, with the belief that this understanding will have significant implications for the future design and delivery of extension in Victoria. This paper discusses the project as a research in progress report. A discussion of the methodological challenges to exploring the learning of dairy farmers leads into a review of the results gained thus far, and looks toward the potential uses of this research for extension. Finally we discuss the next steps of the project – an action research stage that is exploring the interplays between extension and farming practitioners. This study has identified the need for a systems approach to extension and has developed a generic learning plan process that describes the intentional learning of farmers in south-west Victoria.

Keywords: Learning, extension, action-research, farmers

Dairy Extension in Victoria

Dairy extension in Victoria, Australia is delivered through a project known as Target 10. Target 10 had its origins in the early 90's when it was conceived as an extension program for the Gippsland region, focusing on educating farmers about the benefits of maximizing pasture consumption per hectare. Since then, the project has expanded and is now statewide delivering programs dedicated to improving management practices in the areas of strategic planning, cow nutrition, fertiliser use and pasture management (Boomsma et.al., 1999). Target 10 programs manifest themselves as a 12 month activity consisting of 3 core 'theory' days followed by a varied number of on-farm days with participants also having access to 1:1 consultations. This approach, and indeed the entire Target 10 project, has been extremely successful over the 9 years that it has been running with over 40% of farm businesses in Victoria being involved since its inception (Boomsma et.al., 1999). With such success comes the desire for more, and the challenge now for Target 10 is to find ways to deal with this expectation of continued success and innovation. There are 2 potential ways of approaching the issue. First is to refine existing elements and components of the project so as to continually improve within the current framework through which it operates. This approach assumes that by putting in place processes that ensure the collection and dissemination of appropriate information, effective innovation will occur and the relevance and quality of Target 10 will develop over time. The second approach is to reassess the way in which extension is currently performed by examining it through the eyes of the farmer as a learner. We favour this second approach for 3 main reasons.

First is that a shift has occurred in extension over the last 15 years from a profession operating predominately around the diffusion of innovations, or transfer of technology approach, best described by Rogers (1983), to a field that sees itself as promoting practice change through learning and personal development. This shift has been brought about through an increased complexity of both managerial and natural resource issues, which require more than technical knowledge and 'silver bullet' solutions. The second reason for this learning focus revolves around key findings from a review of human resource development and extension (HRD&E) in the Australian dairy industry (Hayes, et.al., 1999). This review concluded that basic changes were needed within the dairy HRD&E system. These changes included a shift towards a culture of support for HR development in the industry, and for a more integrated and efficient HRD&E system to support the development efforts of people in the industry. It was recognised in the review that one of the challenges faced in attempting to achieve such objectives was to increase the focus of HRD&E on learning and to promote the value of a culture that has learning as one of its central elements (Hayes et.al 1999). The final reason for a learning focus is that learning is a fundamental aspect to the development of people.

“Human beings are unique among all living organisms in that their primary adaptive specialization lies not in some particular physical form or skill or fit in an ecological niche, but rather in identification with the process of adaptation itself – in the process of learning. We are thus the learning species, and our survival depends on our ability to adapt not only in the reactive sense of fitting into the physical and social worlds, but in the proactive sense of creating and shaping those worlds.” (Kolb, 1984, pg 1)

Learning provides a way for us to improve ourselves and a means for improving how we act on our environment. Within our agricultural context, an understanding of these processes is crucial to the delivery of services that have as their primary focus behaviour change based on learning and development.

Literature in the area of learning planning is a bit of a mixed bag. There are numerous exemplars of work carried out on the combined area of learning and planning and such work tends to revolve around the planning of learning events in an organizational sense, the documentation of proposed learning activities via descriptions of intent, or descriptions of interventions that have been based and planned upon the application of a particular learning theory. There is however a distinct lack of literature in existence that speaks of learning planning as a dynamic process, combining learning and action in such a way that everyday activity and decision making is described as a case of learning planning process (Paine, 1995). Our research places emphasis on learning activity rather than the documentation or statement of intent. Within the available literature however, we are challenged to think of learning planning as being a socially constructed phenomenon, firmly entrenched within the function of action itself (Bardram, 1997; Paine & Townsley, 1994; Leeuwis, 1995). We are also encouraged to explore the effect that the behavioural and motivational characteristics of an individual has upon the process of learning planning (Murray-Prior 1998, Parminter 1997). The way in which the link between virtual and lived reality is facilitated is seen as an important characteristic of learning planning (Attonaty et.al. 1999), as is its ability to support the emergent element of strategy formation (Attonaty et.al. 1999, Kennedy et.al. 2001). Finally the literature pointed toward the need of learning planning to not only support the design and delivery of intervention strategies, but to also support the farmer in their development as a learner and allow for the fact that within such a process, unreflected action can play a large part (Attonaty et.al. 1999, Kennedy et.al. 2001)

The purpose of this paper is to discuss the initial findings of the Learning Plan Project (LPP), a project commissioned by the Dairy Research and Development Corporation to explore

further the potential that exists in this learning approach. The LPP has been designed to explore the intentional learning behaviour of dairy farmers in south west Victoria as it relates to improved pasture management on their farms. It is hypothesized that this information will be crucial in guiding the design and development of future extension strategies relating to improved management of dairy farms. This paper will discuss the methodological challenges of exploring the learning behaviour of dairy farmers as it relates to purposeful activity and the way in which we have dealt with these issues. We will then discuss results gained thus far and do some ‘crystal ball gazing’ as to its potential uses. Finally we will discuss the next steps of the project – action research to explore the interplays between extension and farming and the implications arising from this work.

An investigation of learning

To investigate possible innovations in extension based on farmer learning, we are faced with several challenges. How is it that farmers learn? How do they go about their current activities and why is this not always what they would ideally like to be doing? How do they then go about coping with this difference between actual and ideal management? These questions raise a number of implications relating to the methodology required for investigating farmer learning, one of which is exploring the topic of learning through engagement with farmers.

This project tackled these issues by taking a practice approach and analysing learning through the activity of individuals. Practice refers to human action on the natural and social world (Paine, 1997). This action manifests itself in dairy farmers through what they actually do on their farm and it is this that distinguishes dairy farmers from sheep or beef farmers. Farmers may sometimes compare their current practice with what they believe to be a competent level of practice. If a farmer’s current practice doesn’t match up with this level of competence, then a gap appears that needs to be bridged for the farmer to be at the level that he/she wants to be.

Practice theory also provides an alternative to the linear model of performance. A linear view of performance places *good* farmers at one end and *poor* farmers at the other end of the scale. In contrast a practice view states that there are many different ways of *doing* something. This variation is not only acceptable; it is in fact crucial to the development of both farming practices and those practices such as extension that interact with them. Innovation emerges through the interplay between these different ways of *doing* something. Understanding how and why practices perform in a certain ways, in our example grazing management, is a first step to changing our approach to extension and to enhancing grazing management. The practices of extension and grazing management can both improve their performance through this understanding.

In order to get a feel for the type of variation that existed in the area of grazing management, past market research carried out for the Target 10 Dairy Cow Nutrition program was used (McDonald, 1997) and later modified through 4 preliminary interviews carried out with experienced south west dairy farmers. Three distinct farming systems emerged from the analysis of the market research and informant interviews. These were labelled:

- **extensive systems:** those that are typically characterised by low debt, low stocking rates, long held family farms and a focus on per cow production,
- **intensive systems:** those systems typically characterised by high debt, high stocking rate, detailed technical knowledge, clear goals and a vision for the future with a profit per hectare focus,
- **consolidating systems:** typically characterised by fairly high levels of debt, clear goals for the future, varied stocking rate, predominantly pasture focused and a farming philosophy that says ‘*I am prepared to work hard now to have a lifestyle later in life*’,

Furthermore, analyses revealed differences between the managers orientation to change. Some farm managers viewed pressures for change (like industry deregulation) as giving rise to new business opportunities, while others considered these changes an imposition on their way of doing things.

Two types of information were collected in the initial interviews. The first type related to the way in which the managers of the different systems actually went about their grazing management, which we believed would be radically different. This information was required to investigate the supposition that grazing management performance does not just vary along a linear scale, rather it is a systems based process. The second type of information referred to the intentional learning behaviour of the farmers - how they went about their grazing management and how this aligned with what they wanted to achieve (and where appropriate, the ways they considered for bridging any gap between their actual and their targeted performance). This we hypothesised would be a generic process across all of the systems and it was this information that we anticipated would be most useful for improving our understanding of farmers and for facilitating interplays between farming and extension practices.

To gather this information we designed an interview questionnaire with 3 sections. The first section was designed to see if the segmentation of the different systems accounted for all grazing management situations. The second section was designed to assess the current performance of the farmer with regards to grazing management performance and what they perceived to be an ideal level of grazing management. The third section was designed to get some information about the ways in which these farmers have addressed the gap between their current and their perception of an ideal practice, and their preferences associated with bridging these gaps. This questionnaire design was intended to reveal a rich picture of both farming systems and the farmer learning processes associated with these systems. In all, 19 key informant interviews were carried out. These interviews varied in length from 30 to 200 minutes. Transcripts were made for each interview which were later coded and analysed using the text analysis program N-Vivo™.

A Preliminary Model of Learning and Change

Analysis of the data gathered from the interviews has focused on the learning process that farmers go through in order to improve their performance in grazing management. This analysis has contributed to the development of a generic model of learning that has been developed to describe the intentional learning behaviour of these farmers as it relates to grazing management (see Figure 1). This section will use the model to explain our current understanding of farmers' intentions to learn.

The performance triangle refers to three crucial elements involved in the way farmers go about their grazing management practice. First was the fact that there is always more than one option available to farmers to do the job of grazing, but in most cases an individual does not embody what an objective outsider might call an exhaustive list of options, rather only those options that are perceived by the practising farmer to be relevant to their situation. For someone undertaking unreflected action, options would often be based on what has always been done. When asked as to why they start grazing paddock one and then proceed to rotate numerically around the farm, one farmer responded "*because that's what we've done.*" The 2nd element of action is a feasibility appraisal and this is something the farmer is continually doing whilst performing a task. Options tend to be appraised via posing the question of "*is it feasible to continue on with this activity?*" The 3rd element has been labelled a task specific reality check. Here the farmer checks to see if the option that is being used and implemented is in fact doing what they initially intended it to do. This check therefore relates specifically to the action being undertaken and its effectiveness regardless of feasibility. If a farmer

operates mainly within this part of the model then he or she is primarily performing unreflected practices that form the most basic unit of grazing management performance.

The intentional element of the learning process is linked to the performance triangle. Farmers who are operating in an intentional mode have developed a set of intentions that revolve around their goals, objectives and desires. These intentions exist in tension with their perception of the barriers that reduce their potential to achieve their desired level of performance. These barriers take 2 forms. Internal barriers (or those things that are within the circle of the farmers control) relate to the way in which an individual manages their farm. External barriers relate to those things out of the control of the farmer, barriers relating to season, milk price etc. The barrier of milk price is a good example of why these barriers are not an objective reality but better understood as a perceived reality, in that milk price can be improved through a variety of management approaches. Price could be seen as a barrier, limiting the formation of intentions, for those individuals who do not conceive these management possibilities. Intentions inform the actions but correspondingly, actions impact upon the perception of barriers and the tension that exists between these and intention formation.

A model of intentional learning on its own tells us little about the complex foundation underlying decision and action strategies which consists of a variety of cognitive and emotional properties (Bandura, 1986). Our model has attempted to capture this by referring to the learner's worldview¹ as it impacts on the actions and reflective activities of grazing managers. Our model indicates that the worldview impacts on four aspects of learning and reflection. One aspect relates to the impact that a worldview (embodied by the learner) has on the formation of the learners' intentions. If through my worldview I perceive my role in the farming system as being one of reaction to seasonal variation, then approaches to developing innovative strategies may be similar to this farmer's approach to nitrogen use: *"What it boils down to is if we don't get enough rain we don't get any grass. If there is no rain we are wasting our time putting anything on."*

The second area of impact is on the relationship between intention formation and grazing management performance. It is the link between intention formation and the actual undertaking of action where the learner's worldview has the potential for greatest effect. This effect is one of reinforcement and is like a two edged sword. First it can reinforce action strategies that yield desirable outcomes. The flip side of this comes when undesired action is also reinforced. This reinforcement will only be countered by a worldview that challenges the assumptions, values and beliefs that go toward informing the action strategies of an individual. For example, when a worldview that underpins organic farming confronts a worldview underpinning precision farming.

A third aspect refers to the impact that the embodied worldview has upon action itself. This impact will dictate those options that are perceived as being valid and those that are not, as well as informing the benchmarks for performance assessment. Finally worldviews can impact on the reflective process by setting the criteria upon which actions are examined relative to the wider goals and intentions of the farmer.

In an extension context the learning process is a situation where the action and intention formation by the farmer can be in tension between their embodied worldview and a challenging worldview that questions the assumptions underlying action. These tensions can be used effectively for learners to expand their worldview and consider possibilities that were previously outside their current way of thinking and performing. This causes a continual re-evaluation of the formation of intentions, the process of reflection and ultimately the

¹ The comprehensive conception or apprehension of the world, especially from the specific standpoint of dairy farming (ie. the weltanschauung)

performance of grazing management. An interplay between farming and extension practices means this type of learning experience is shared by both practices.

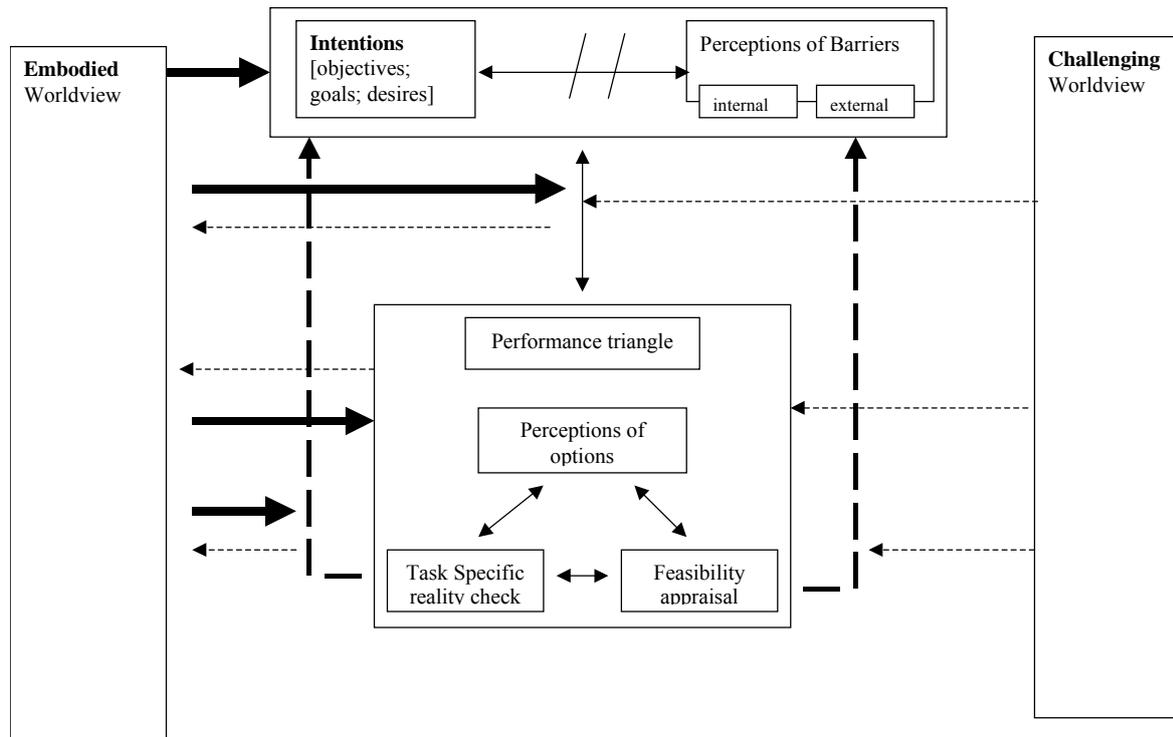


Figure 1: Learning Plan Process

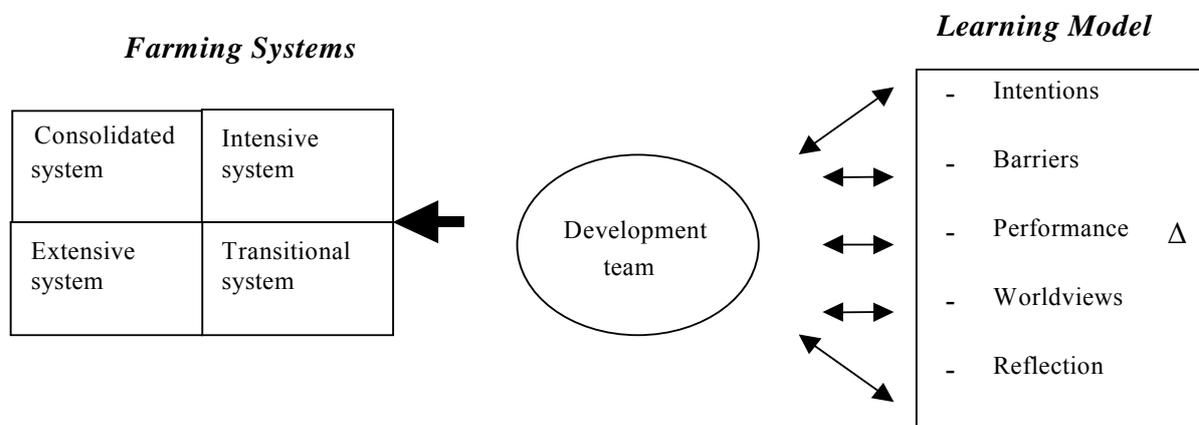
Our model raises many questions in relation to the way we perform dairy extension in Victoria. Are we currently allowing for this learning process in the way we do our extension? If not, is our current conceptual framework able to adapt to such a process? If it cannot, do we have other options, alternative methods and approaches that would enable us to be more sympathetic to the learning needs of our clients? To investigate these issues we have embarked on a second stage to this study of learning processes.

Working on Innovation in Extension

In the second stage of this project the extension profession is an active co-developer in the design, testing and evaluation of ideas and tools for learning in groups. The response of extension practitioners to the initial results from the study were encouraging, and as a direct response to this work, a group of five extension staff from around the state have committed to 6 months of intensive work to develop and apply a learning planning process within Target 10. Throughout this joint work we are careful to ensure information is used in a way that benefits both the practice of farming and extension. The team plans to use the process as a foundational tool for examining both the way in which we currently operate, as well as exploring alternative approaches to fostering learning and change in the area of grazing management. To date Target 10 has developed generic products and undertaken market research to improve the way these products are communicated to their target audience of farmers. The development team will reflect on their interaction with farmers using the learning model as a way to identify product development requirements for each type of farming system (see Figure 2).

Farmers that are managing each of the different systems will have particular needs and support requirements that can be investigated from the learning model perspective. For example, intensive farming systems will refer to profit goals and a well developed capacity to process information but restricted capital resources in the short term (a form of barrier). This compares with an extensive system where capital may be less restrictive, but more value is placed on social or aesthetic goals than maximising returns from the dairy enterprise. In this way the model will be used as a product design tool that is sufficiently general to relate across all systems and practices encountered in dairy farming. Conversely, it is hoped that using the model in an action research strategy with extension practitioners will ensure product designs will be sufficiently specific to meet the needs of individual farmers without excessive duplication, or State Department expenditure on customisation. It is anticipated that the outcome of this action research stage of the project will be an extension service with a sharper focus on learning, and with evidence of change in the practice of grazing management. If this outcome is achieved then the project ought to also contribute to improve the clarification of public and private sector support for farming practice.

Figure 2: Product development using the learning model



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