URBANISATION, COGNITIVE DEVELOPMENT AND FARMER LEARNING

KEN MOORE

Effective farm management requires well developed cognitive (thinking) skills normally gained through certain urbanising processes and upper secondary and tertiary training. Trainers of young farmers must design courses to develop these skills. Farmers who have learnt farming by farming are at a serious disadvantage unless new learning can be gained in an non-threatening environment. On-farm trained farmers have indicated the lecture model is inappropriate, and providers of training must understand farmers better in order to communicate new systems, techniques and skills effectively. At a time when more highly skilled farm managers are needed, the average age of farmers is on the rise, and young people are hesitant to embark on a farming career. The gap continues to grow and widespread, effective farmer training is now required on an unprecedented scale.

Introduction

As the title of this paper suggests, my approach to farmer training is from a specifically educational perspective. Experience gained in agricultural training in Australia, Tanzania and New Zealand, combined with secondary teacher training and time off in 1988 to carry out an in depth survey of farmer learning preferences has lead me to conclusions outlined very briefly below.

Definitions

Emery and Oeser (1958) have pointed out the differences in attitude towards knowledge held by rural and urban cultures. An urban person can accept that knowledge may be transmitted by impersonal means, such as books, and by teachers who are institutionally and physically remote from the places of work and production. The rural person is likely to want to test knowledge by personal practice and experience, and expects this knowledge to be passed on from father to son, and between contemporaries, by face to face communication. Urbanisation helps young people break out of traditional molds and attitudes towards knowledge, and to participate more readily in off-farm learning.

Farm management, defined by Edgar Persons of the University of Minnesota, is more than the accumulation of isolated knowledge and skills. It is the putting together of related knowledges, skills, ideas and concepts in a logical, thoughtful reasoned pattern that will allow the operator to plan, direct, control and evaluate the whole business. This, according to the educational theorists, requires well developed cognitive (thought processing) skills.

Hawkins, Almond and Dwyer (1974) note that children who

grow up on farms have a different cognitive style (way of thinking) to urban children. Rural children learn by direct experience and use iconic (concrete images) language in contrast to their urban counterparts who use a more propositional language and refer to relationships between objects and events.

While the final level of cognitive development in any individual is probably determined genetically, developing that person's potential ability to think is a function of the environment, and education, particularly at the senior secondary and tertiary levels plays a vital role. "Lincoln (University) taught me how to think", is a comment often made by ex-students now farming.

In New Zealand we provide initial farmer training through full-time and part-time courses ranging in length from months to years. This takes place in the face of a firm belief amongst many farmers that real farm learning occurs on-farm, and such people view agricultural training institutions with scepticism. The prevailing attitude towards off-farm training, is I believe, bound up with a lack of urbanisation and poorly developed cognitive skills. Formalised farmer training has an added benefit - the learning of the technical language of agriculture. Failure to learn this language further widens the gap between farmers on the one hand, and scientists and agricultural educators on the other.

Implications for Farmer Training and Learning

I surveyed a community of 110 farmers in 1988. Many of the people who scored well on a management skills index were men who had done four or more years at the secondary level, and who had, in many cases gone on to tertiary training in agriculture.

Table 1
Distribution of Management Indices by Secondary School Attainment

No in group	Management index range	Average mgt index for group	No secondary qualifications	School Cert. 6th Form Cert.	University Entrance 7th Form
15	20-35	33	11 (73%)	3 (20%)	1 (7%)
41	40-55	51	24 (59%)	10 (24%)	7 (17%)
23	60-75	71	8 (35%)	8 (35%)	7 (30%)
18	80-95	86	4 (22%)	3 (17%)	11 (61%)

The management index was calculated on the basis of 5 points for each of 20 characteristics typical of good farm managers. There was a direct correlation between the index and years of successful schooling. A similar correlation between

management index and the level of tertiary training in agriculture was apparent, but this was less marked than the relationship with schooling. A number of people with University Entrance did not study formally beyond school, but were good managers. It seems some people are naturally well advanced in their cognitive development while others develop more advanced ways of thinking through higher schooling. What is quite clear from the study is that those who are successful at upper secondary school go on to become, on average, better managers of their farming businesses.

A number of the farmers surveyed had attended city boarding schools. As a result they had made friends with people who were now professional people, agricultural university and research staff, and bank or stock firm managers. They felt at ease with these people in their urbanised environment, and did not hesitate to turn to them for advice when it was needed.

In the past farmers' sons who were not doing very well at school left as soon as they could to return home to help on the farm. This provided a cheap source of labour, but it usually meant the young farmer was limited to a one farm experience, and remained under a father's control until he had passed the age where he would change his management patterns significantly. It was a Kenyan who observed that a man does not become fully a man until his father dies and he is free to act on his own initiative. Although the average farmer age for the survey was 42, many of these farmers had less than ten years management control over their farms. This points to fathers who had been reluctant to hand over management responsibility to their sons.

Most New Zealand farms are run by owner-operators. Successful farmers must have mastered the necessary physical skills, have a good knowledge of the husbandries and an understanding of finances, while managing both the physical and the business sides of the farm work. Sometimes people who have had academic success lack the stockmanship, physical skills and perhaps the general management ability to farm successfully. When these people take up farming and fail, the off-farm training process comes under severe criticism. The survey showed, however, that many of the best farmers had a good academic background, and that failure was unusual.

Because farming is multifaceted and multiskilled an effective training programme needs to weave together the different elements of learning in a carefully balanced sequence. This is a lengthy process, and when a young farmer is most ready for management training he is likely to be most committed to a farm and a young family. Full-time study programmes attempt to teach would-be farmers when they are uncommitted to spouse and family, but they are young and know too little of life to properly appreciate and benefit from management training. At the same time these young people can become so pre-occupied with social and sporting activites that their studies suffer. Part-time courses can be timed to fit in better with the individual's stage of personal development, but even part-time courses have to compete with farm commitments at busy times of the year. Both options have their

drawbacks.

I believe the best training programme will incorporate full-time study off-farm followed up with part-time study while farming. The full-time courses may well include manual skills training (or require practical experience prior to the start of training). If farm managership is the students ultimate goal, an entry pre-requisite should be at least 4 years of secondary schooling. The course should aim to develop cognitive and information seeking skills. It is usually the best time to give a grounding in the farm husbandries and, to a lesser extent, the financial skills. The technical language of farming learnt at this stage opens the door to a variety of on-going training opportunities avoided by many traditionally trained farmers. Training this way provides the urbanising factor for rurally raised young people, and gives them an opportunity to get to know and trust agricultural teaching staff who are not farmers.

Once young people working on farms become involved in mamnagement decision-making, a part-time course in farm management is appropriate. The comments made by farmers visited by groups of part-time students in their mid-twenties (and older) indicate that these students are far more aware of the realities of farming than the 19 or 20 year old with limited farm experience. The more mature students assimilate management principles far more readily and are usually free to implement them at once.

If training courses have had the desired effect (that is, have had an urbanised influence, and have further developed cognitive skills), then students completing them should be able to seek out further knowledge from appropriate sources and evaluate new opportunities using professional advice when necessary. Such skills are only poorly developed in farmers who have learned farming simply by working on a farm.

But even by providing the best possible mix of young farmer training we only go a small part of the way to solving our inadequately trained farmer population problem. Currently 5-7% of those entering farming receive university degree/diploma training, with another 12-15% doing trade training through the polytechnic system. Around 70% of the people replacing retiring farmers begin and continue farming by simply getting a farm job and continuing to learn by working alongside a farmer. Some will have trained for other work, and because they have learned how to learn elsewhere, are willing to ask for advice. These people frequently become better farmers than those born and bred on the land.

So many New Zealand farmers left school early, have had no tertiary training, gained management control late when the father died or retired away from the farm, and probably have experience in just one type of farming enterprise. They are generally conservative, blame the government for many of their difficulties, and feel threatened by anyone who has not learnt farming as they have. They are much more likely to find out information from a contemporary over a jug of beer than from professional agriculturalists at a field day. The traditional "home-apprentice" farmers mistrust the findings of scientific

trials until they have seen a crop or technique successfully implemented on a real farm in their locality. They love to relate tales of "college" trained farmers who have bungled and use these occasional instances to prove that tertiary training is a waste of time. They are very critical of agricultural experts who use technical language, particularly when these experts are insulated from climatic adversity by a generous salary. Few of these farmers use the services of private or Ministry of Agriculture and Fisheries advisors, nor do they belong to farm discussion groups.

In the past farming has been supported by a vast, and free, infrastructure. Since then we have seen stock and station firms merged, restructured, and retrenched. Stock agents, once a good source of information, concentrate now on making sales. They visit their best clients regularly, but the bottom 50% of farmer accounts are serviced with the occasional phone call. Ministry of Agriculture advisors, once free, now charge similar fees to private consultants. They have regular contact with probably less than 20% of farmers in the farming community they service. The farming magazines, once a source of technical information, have become far more financially oriented, and expensive. Newspaper farming pages publish reports from field days and conferences only if farm advertising justifies the editorial space. In short, there is an increasing lack of written material, information and advice for farmers who do not wish to pay for outside expertise.

Government advisory services have relied heavily on the spread of innovation from early adopters to other farmers. This had validity when applied to farming techniques, or new breeds, cultivars and agricultural chemicals. Management style, especially financial management, an important key to productivity, is different. One survey question asked farmers to estimate how many farmers they thought kept a cashbook. Many were surprised by the question, and admitted that they did not ask these sorts of questions of their fellow farmers. As it happened, fifty-eight percent of the farmers surveyed did keep a cashbook or its equivalent. A similar number did an annual budget, but few updated the budget from the cashbook. The annual budget had to be done for the bank manager - it was not seen by many of the farmers as a valuable farm management tool to help them plan and maintain financial control.

Christchurch Polytechnic has been running courses on managing the farm office for several years. Mostly it is women who enrol to learn how to keep a cashbook and complete GST returns. They show real interest when they see how a computer can speed up the task, but it appears that most farmers, even those who acknowledge the probable usefulness of a computer on their farms, see it as a future step once they have some discretionary dollars to spend. Yet the computer, with the sophisticated farming software now available, is a potent factor in improved finanacial management on farms.

It is difficult getting farmers to come to training sessions in farm production. Management training, particularly financial management, for existing farmers is even harder, as this is such a private part of the farmer's life.

I wonder if the aversion to training expressed by so many farmers is purely historical and a function of the rural attitude to knowledge and learning, or are trainers in part to blame? I believe we are at fault if we fail to understand the differences in outlook between rural and urbanised individuals, and continue to force a highly propositional and overly technical form of training on an under-educated farmer population.

Eighty percent of surveyed farmers, when asked to state their learning environment preferences gave first choices for situations where farmers, in a largely farmer-directed context, had a chance to be heard, to ask questions and have an opportunity for discussion. A mere one percent gave the full day, lecture-based information day as a preferred learning environment. The traditional farmer was much more at home listening to a known local expert in a woolshed than to national and international authorities in a large lecture theatre.

Top preference (49%) went to the seminar with demonstrations, small groups, with question and discussion opportunities. The next most preferred learning opportunity (16%) was talking with other farmers, ranking second equal with the farm discussion group. While an outsider may be an expert on a topic, farmers see themselves as the experts on their own farms. Effective training has to be two-way so that issues can be debated and questions answered to everybody's satisfaction.

Large group, one way, training days run directly counter to the very personal, face to face, way in which the rural person is used to transfering knowledge. If we want to further train the older farmer population, it is obvious that small group methods need to be followed. In woolsheds rather than institutional settings, with input from people who are proven communicators with farmers. I am convinced that much of the technical language used by agricultural experts, together with their graphs and sets of tabulated trial data, are shear gibberish to a lot of our traditionally trained farmers. These farmers think about farming using images rather than concepts, and only feel at home in a farm setting. If we are serious in our attempts to reach them with new learning, we have to move into their world, and train in terms meaningful to them. It is incredible that with a history of over one hundred years of agricultural research and education in New Zealand, between 60% and 70% of farmers (my estimate) work largely in isolation from the training and advisory networks that exist for them today.

I know that farm management consultants depend on farmers needing help for their living. My survey showed that it was the best farmers rather than the most needy who sought outside advice. A better educated farmer population will increase the demand for consultancy work, and it is in the best interests of farm advisors to foster, rather than hinder, farmer training programmes.

The recently formed Farm Education and Training Association is promoting young farmer training, but the number

of trainees involved is small when compared with the needs of farming for trained entrants into the industry. Their 1992 target represents around 10% of those required to replace retiring farmers each year. Another 5% of those needed will train directly through university and polytechnic full time courses. How can the farming industry improve productivity through better financial management when so few of our future farmers are undergoing effective training?

Part of the solution must be the training of existing farmers. It is clear, however, that ongoing rural education is reaching a very small percentage of farmers. If existing farmer training is faulty, then it could be concluded that the trainers need better training in order to understand the way farmers think. Then we could work more effectively with them. This is a challenge for the universities to move much more into the educational aspects of farmer training, and for the industry to demand graduates trained to work with the bulk of the farming population.

We simply cannot go on, as we have for the past 100 years, relying in the main on the informal, on-farm experience to train farmers. Politicians, at national and farming levels, insist the family farm will continue as the backbone of the industry. A fond hope when we see increasing numbers of corporately owned dairy farms, with worker-managers running them, overseen by a few rather better trained people. It is a trend likely to continue if individual farmers do not acquire the management skills to farm profitably through the 1990's.

We have a vast training backlog. Optimistically, 20% of new entrants to farming receive some form of formalised husbandries and manual skills training, and to a more limited extent, management and financial training.

At the secondary level there are only a handful of horticultural and agricultural graduates accepted by the Colleges of Education for teacher training each year. There are probably less than twenty people nationally who are involved with farmer training at the tertiary level who have university qualifications in education. It is difficult to know how we can break with this sorry state of affairs unless there is a wholehearted and widespread demand for better and more universal training for farmers from within the industry.

I have done my best to alert you to the great need for better and widespread training for farmers. I am convinced that it will not threaten farm management professionals. Quite the reverse, for it is the better trained farmers who seek advice from outside professionals.

I challenge you all to actively foster farmer education and training. It is in your own interests as farm management experts, as much as it is in our national interest, to make proper farmer training a top educational priority and to involve yourselves with the training institutions as together we seek to serve farmers and farming.

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