

Forms of evaluation - for agricultural extension *

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ABSTRACT

Program evaluation emerged as a semi-professional discipline in the 1960's in the context of health and educational programs. A great range of international literature, theories, tools and activities have been developed, including the formation of an Australasian Evaluation Society. However, there appears to be limited knowledge amongst agricultural extension practitioners of the range of approaches and methods used in other disciplines. In the present climate of accountability and change there is strong need for greater understanding and expertise in evaluation amongst field practitioners.

Information from our current Review of Evaluation in Agricultural Extension has allowed us to map the types of evaluation commonly conducted in Australia, according to a framework modified from Owen (1993), involving five "forms of program evaluation". About 43% of the 50 evaluations studied were found to be summative assessments of program impact, while 37% involved process evaluation, ie., aimed at improving program delivery. Less common forms were evaluation for design clarification (9%), evaluation for program management (7%) and evaluation for program development (4%). Most of the programs evaluated were aimed at enhancing skills of farmers.

The main lesson gained from the review is that evaluation can be used effectively for a range of purposes if the evaluator has a broad knowledge of program evaluation. One aim of the (RIRDC sponsored) Review is to provide a source of material that can be used in training rural professionals in a range of forms and approaches in evaluation.

Introduction

This paper outlines the findings of a *Review of Evaluation in Agricultural Extension in Australia*. The review consisted of collecting documents on 70 evaluations from the field of agricultural extension and categorising these according to the “purpose” of evaluation and other criteria. The main body of the Review comprises descriptions of each of Owen’s (1993) five forms of evaluation, with case studies taken from agricultural extension to illustrate each form. This paper summarises the review of literature on evaluation and some characteristics of the evaluations in the sample of reports examined.

The study was conceived in the context of an increase in the demand for material that can be used to train agricultural extension agents and other rural professionals in the field of program evaluation. In addition to defining the range and type of evaluation studies in agricultural extension, the Review set out to introduce readers to the broader concept of program evaluation and its applications in agricultural extension. Topics covered are:

- major trends in agricultural extension in Australia
- factors influencing demand for evaluation in extension
- development of *program evaluation* as a discipline, worldwide
- Owen’s five forms of evaluation, with case studies
- summary characterisation of 50 evaluation studies
- summary of methods of evaluation and literature sources

The Review drew on literature from various disciplines outside agricultural extension; the literature of program evaluation and of monitoring and evaluation of agricultural development projects in lower income countries.

Emphasis and some evaluation terms

The format of the Review is based upon the notion that extensionists need to develop a sound understanding of program evaluation, rather than a ‘recipe-book’ approach to evaluation. Chen (1990) writes strongly about the dangers of method-driven evaluation. He suggests that a good evaluator should be able to employ a range of approaches and methods to suit the particular purpose and context of the evaluation.

Put simply, *evaluation* involves determining the worth or merit of whatever is to be evaluated (Scriven 1967). Many different uses can be made of those value judgements - from assessment of program impact, to improving program effectiveness, and/or informing decisions about planning future programs.

Scriven (1967) was the first evaluator to write about the distinction between the two commonly accepted terms - *formative* and *summative*. Summative evaluation is conducted to provide decision makers and potential consumers with judgements about the program’s worth in relation to important criteria, while formative evaluation is conducted to provide program staff (and or clients) with information useful in improving the program (Worthen et al 1997). Although there is undoubtedly a need for both summative and formative approaches, modern literature on program evaluation tends to promote formative approaches, i.e., evaluations that are concerned with the process of program development or improvement (see Box 1).

Box 1. Extracts from literature - in support of formative/process evaluation (Patton 1997; Worthern et al 1996)

- summative (or outcome) evaluation carried out at the end of a program may fail to provide information on how the outcomes were achieved
- knowledge about the process that led to desired or undesired outcomes can be valuable in future programs
- if a program is not achieving its aims, it is preferable to identify this early in the program - to give potential of refining, re-defining or clarifying the model
- process evaluation can cater for unexpected happenings or intermediate outcomes
- process evaluation can lead to team building, as it can enable common understanding of aims, objectives and purpose
- where attitude change is the goal of extension, causal factors for change are difficult to identify without understanding of the process that led to change
- in programs with built in outcome evaluation, there is danger that the indicators will become the mission of the program

A lack of skills and information on evaluation in agricultural extension

Most of the early advances in program evaluation were in the field of education and even today most literature has an educational or health-related context. Of over one thousand members of the Australasia Evaluation Society, only two list *agriculture* as an interest. The limited existing literature on evaluation in agricultural extension is mainly out of date, under-used and inaccessible to many extension agents.

The current lack of information and expertise in program evaluation in agricultural extension is perplexing to those who are aware that historically many important contributions to program evaluation have been made from the field of agricultural extension (for example the theory of diffusion of innovation). Perhaps this lack of skill and confidence in evaluation can be attributed to the nature of agricultural extension itself and the science-based tertiary education of many extension agents. In addition to this bias in training, the goal of agricultural extension is ultimately concerned with changing behaviour, and the achievement of this goal is commonly perceived to be difficult and complex to measure, especially quantitatively.

Increasing demand for evaluation

Evaluation is high on the agenda of many organisations. Some commodity R&D corporations now make it a condition that all new projects have a built in evaluation component. In 1995, during a series of workshops aimed at gaining feedback on how to improve the performance of agricultural extension in Victoria, extension workers listed evaluation skills more frequently than any other issue needed for their professional development (per. comm. Straw 1997).

Throughout the history of agricultural extension in Australia, approaches towards evaluation and the degree of importance given to evaluation have reflected the changes in government policy and the environment of agricultural extension itself. The changing nature of

agricultural extension at the macro level has resulted in increasing demand from government departments, R&D corporations and other institutions for personnel well-trained in evaluation to take on a wide range of evaluation tasks in rural industries. Today, several factors combine to make new demands on evaluation in agricultural extension:

- 1). In most states of Australia there is a movement towards the purchaser-provider model for publicly funded agricultural extension. This model aims to increase impact, decrease overheads and amongst other things, to increase evaluation - particularly summative evaluation. The model also has a strong outcomes focus and projects are required to have built in evaluation. This presents a trend in agriculture for programs with “sharper focus”, which will often require a strong summative approach to evaluation.
- 2) The Information Knowledge System (IKS) of agricultural extension in Australia is becoming increasingly complex. The shift in focus of R&D from production orientation to a more holistic view including sustainability and improved marketing adds to this complexity. There are also more actors operating in the capacity of ‘knowledge bearers’ to farmers. The implication of this on evaluation is that it is becoming more difficult to distinguish the impact of one program from that of another.
- 3). Worldwide, agricultural R&D programs are becoming increasingly participatory. New theories and approaches are gaining acceptance, such as those of Chambers (1983; 1994) who argues that R&D activities should begin and end with the farmer. Agricultural extension in Australia is undergoing a similar paradigm shift. The new emphases are on adult learning, reflective practice of extension workers as facilitators and a strong focus on evaluation.
- 4). The need for formative evaluation in agricultural extension programs in Australia underpins a larger movement towards increasingly process orientation of rural programs - particularly in Landcare and sustainable farming systems development. Programs with a process approach do not have rigidly defined goals at their start but have a defined purpose; they are difficult to evaluate as they produce unpredictable outputs that are hard to measure objectively (Farrington and Nelson 1997).

Thus, the Review was conceived in a background of increasing demand for different types of evaluation, and a lack of expertise and confidence amongst many extensionists in understanding the range evaluation of approaches required to meet this demand.

Characterising the Sample of Evaluation Studies

Documents were collected from 70 evaluation studies in the field of agricultural extension from six states of Australia. Of these, 50 reports were selected for study and analysis. Twenty were ruled out as they contained insufficient information or were evaluations of “one-off” workshops rather than of extension programs. The type of program evaluated in the sample was oriented predominantly towards education or skills training (67%) amongst farmers. Fourteen percent were community-based programs, 14% advisory programs and 5% were technology transfer programs.

This sample contained some inherent bias in that it comprised mainly documented evaluations and did not include internal departmental monitoring and evaluation systems, or informal evaluations. Macro-level evaluations were also excluded, and some innovative forms of evaluation research may have slipped through the net because they are not always labeled as evaluation. It does however, provide a first glimpse of the overall picture of approaches to evaluation in agricultural extension nationally.

The studies in the sample were characterised according to various variables relating to (a) the program, (b) the evaluation, and (c) the type of methods used. Some of the results are summarised in Table 1.

Table 1 Summary characteristics of the evaluation studies

CRITERION	Approximate percentage in categories (n=50)											
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	
Form	summative 54%						formative 32%			both 14%		
Stage of Program	developing 25%				settled 58%					finished 12%		
Perspectives considered	multi-perspective view 40%					maintained a single focus-perspective 60%						
Evaluator	external evaluator 63%					internal evaluator 26%			both 11%			
Audience	external audience 20%			Internal audience 64%				Both 15%				
Data Type	qualitative 44%					quantitative 27%			both 11%			
Surveys	structured survey 52%						no structured survey 48%					
Focused group discussion	focused groups used 42%					not used 56%						
Rapid Rural Appraisal (RRA)	RRA 10%		RRA not used 90%									

It is notable that 54% of evaluations were summative. Many evaluations were, however, conducted during (the process) rather than at the end of a program, which would allow potential to re-define aims or modify the program. A multi-perspective view is apparently quite common; this involves utilising people from different backgrounds and “worldview” in conducting evaluation. The use of external evaluators was most common and the main audience of evaluation was internal, ie., the program management and or staff. Although structured surveys were used in about half of the studies, most of the data gathered were qualitative. Only a few studies included RRA (rapid rural appraisal) methods, but nearly half used focus groups at some stage of the evaluation.

Purpose (form) of evaluation

Owen's (1993) classification is based on the purpose of evaluation, and the five forms are summarised below:

- Form 5** **Evaluation for program development** - carried out prior to program commencement
- Form 4** **Evaluation for program design clarification** - carried out when the program is still developing
- Form 3** **Process evaluation** - occurs during the developmental stage, with a focus on program delivery and improvement
- Form 2** **Evaluation in program management** - generally the servant of the program management
- Form 1** **Evaluation for impact assessment** - usually carried out towards the end of program and aimed at judging whether desired outcomes have been reached.

Figure 1 shows the distribution of studies according to Owen's forms. A difficulty experienced was that studies could often be placed into more than one form, especially with regard to the time frame that Owen attached to the model. To overcome this, a distinction was made between summative and formative process evaluation. Hence, form 3 was subdivided into two, as in Figure 1.

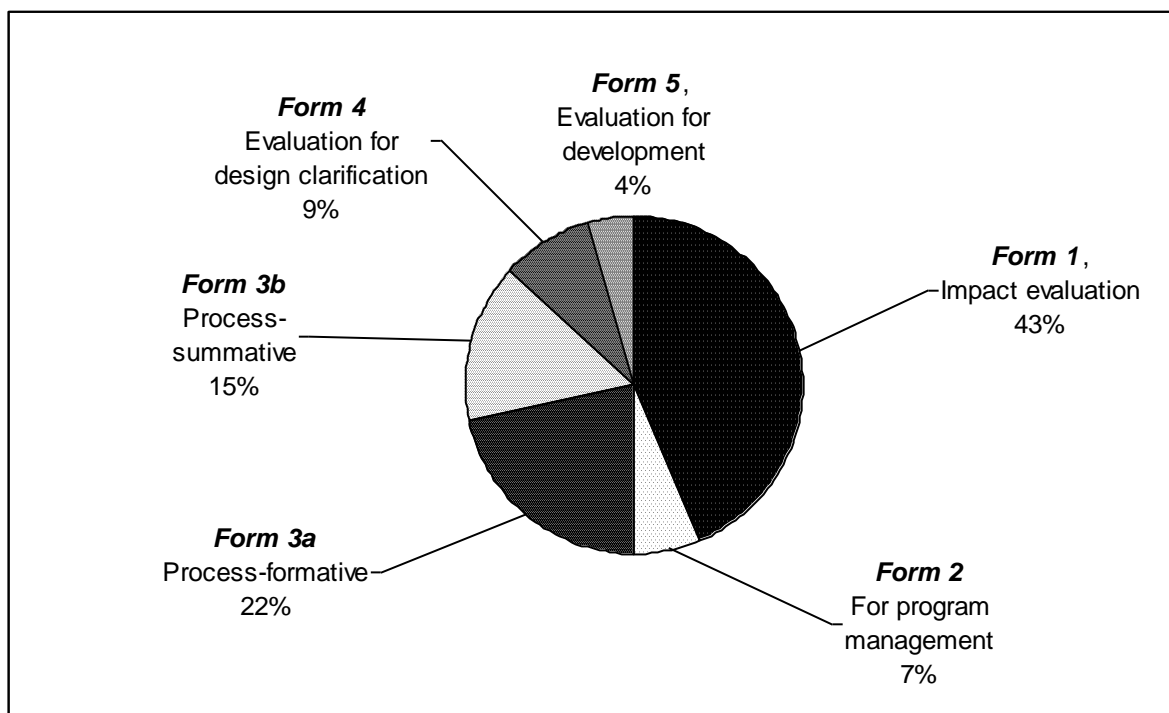


Figure 1 shows that *impact studies* (form 5) were the most common form of evaluation in the sample, but that process (form 3) studies were also very common.

Bennett's Hierarchy

The evaluations were also analysed with respect to the level of Bennett's hierarchy (Bennett 1975) considered in the evaluation. Bennett lists eight levels of goals in agricultural extension and claims that it is more difficult to evaluate at higher levels as it becomes more difficult to verify that changes at these levels are the result of extension activity and not of other factors. The levels in Bennett's hierarchy and the percentage of studies considering each level are shown in Table 2.

Table 2 Percentage of evaluations operating at each level of Bennett's hierarchy

Level in hierarchy	Description of level	Percentage of studies (n=49)
8	Consequences for society	1
7	Consequences for the target group	5
6	Behavioural changes in the target group	22
5	Change in knowledge, attitude, skills, motivation, and group norms (KASA)	55
4	Farmers' opinion about extension activities	75
3	Farmer participation in extension activities	85
2	Implementation of the program by extension agents	65
1	Programming of the extension activities	52

The majority (85%) of the evaluations operated at Bennett's level 3; while 60% considered changes in KASA (level 5). Only 22% measured behavioural changes - reflecting the difficulty of evaluating at these levels.

Level of participation of the clients in the evaluation

The sample of studies was examined in terms of the level of client participation in the evaluation process. This was achieved by scoring each evaluation against a continuum of participation. The results are summarised in Figure 2. In 54% of the evaluations the clients were not involved in developing the indicators for the evaluation, while at the other extreme 7.5% of the evaluations involved the clients carrying out their own evaluation under facilitation.

The proponents of highly participatory evaluation stress the relevance in many situations of involving clients in developing the evaluation framework, especially with regards to the choice of indicators. Patton (1997) writes that evaluation with a very high level of client participation is most appropriate where the goals of the program include helping the participants to become more self-sufficient and personally effective.

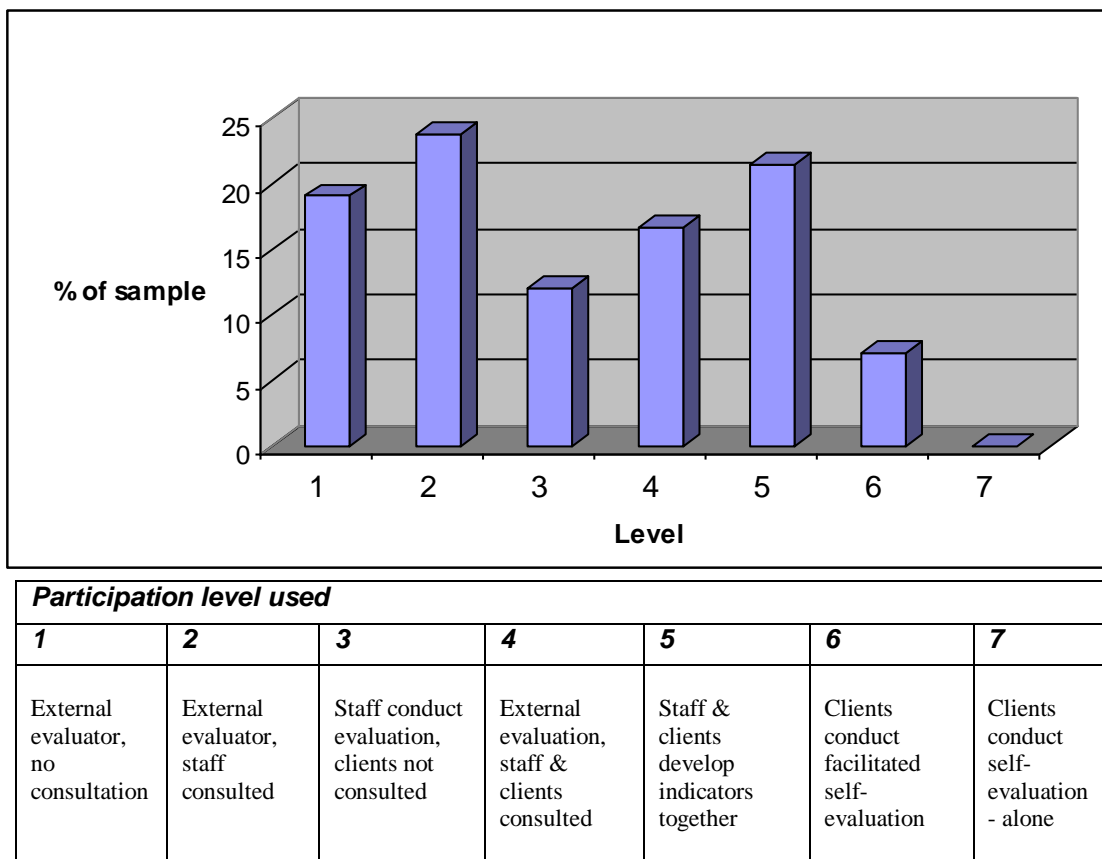


Figure 2 Level of participation in the evaluations reviewed

Discussion

A picture emerged from the reports of the most common approaches to evaluation being adopted. A typical summative evaluation in agricultural extension in Australia would use both qualitative and quantitative data analysis. It would be conducted while the program was in a settled stage and would be carried out by external evaluators. The farmer clients of the program would not generally be involved in developing the indicators for the evaluation, although a pre-test of the survey would be carried out to check that the questions were acceptably phrased. The general aim would be to provide a report to justify spending and to understand whether stated objectives had been met. Focused-group discussions might be used with a small number of farmers to determine the factors most important to them.

A typical formative evaluation is more difficult to describe as these came in many forms. It is likely to be a wholly qualitative study, employing semi-structured interviews, or possibly RRA and PRA (participatory rural appraisal). It would utilise an internal evaluator and be aimed at improving the program.

Anecdotal evidence from discussions with various organisations during this study revealed that there was a lack of confidence amongst extension personnel about the design of evaluations, selection of appropriate methods, conduct of evaluations and utilisation of findings. There appears to be a tendency to stick to a handful of familiar methods for a wide range of situations. In some studies there seems to be a lack of understanding of evaluation in its broad sense.

However, some studies reviewed were found to be innovative and exploratory in approach. These examples generally fit under the umbrella term of 'process evaluation'. This work is largely developing from the school of adult learning, although these approaches are not always labeled as evaluation.

A suite of appropriate evaluation techniques could be adapted from other disciplines to meet the needs of agricultural extension programs. However, evaluation involves more than learning a few methods; it requires clarification of the aims of the evaluation and then being able to select from a wide range of methods to meet the need. The literature on program evaluation is daunting and filled with evaluation jargon. In order to breach the gap agricultural extension needs its own texts on evaluation that relate closely to advances in evaluation theory from other fields but remain palatable and relevant to field workers.

Evaluation is an instrument of learning. It can provide us with a window into the complex world of cause and effect of program intervention. In order to develop effective agricultural programs that are flexible enough to meet the changing needs of society we need to develop our skills in evaluation and understand the range of approaches and applications. Keeping in touch with evaluation theory and practice of program evaluation in other disciplines is a good way to start.

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