

## Chapter 11: Conclusion

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*“If we could but know where we are now, and where we ought to go, we could better judge what to do and how to do it” - Abraham Lincoln, 1809-1865 (Applewood, 2003).*



## 11.1 INTRODUCTION

This study started with a certain rationale in mind, emerging from various sources and directions as indicated in Chapter 1. It was a personal, felt responsibility which were further embedded in global declarations by the FAO and the WHO as well as commitments made during the World Food Summit in 1996 and 2002. Results from the most recent 'National Food Consumption Survey' (Labadarios, 2000) also inspired the study and lead to the challenge to design, implement and evaluate a community-based intervention, specifically with the aim to address nutrition-related problems in a rural community on a commercial farm in South Africa.

The study was also a pilot project for the research focus area within the Food/Nutrition section of the Department Consumer Science in collaboration with the Centre for Nutrition in the School for Agricultural and Food Sciences. The research part of this study was an example of a scholarly effort based on sound research principles to show how a programme can be designed, implemented and evaluated. This study should be positioned within the context of a broader theoretical perspective, namely community development. Only one particular aspect of the nutritional situation on Oranje farm was addressed in this study, namely hygiene and sanitation. Many other factors that might influence the nutritional status of rural communities on commercial farms should be addressed similarly.

The aim of the study was not to strive for external validity (generalise the findings to other rural communities) but to internalise the process of research (specifically Participatory Action Research) within a rural community, contributing to the body of knowledge on the relevance and success of interventions in rural communities within the realms of health and nutrition. This process provided opportunities for the research team to learn more about implementing PAR in rural communities, to learn from the community itself and applying that knowledge into a constructed model for future projects.

This study has to be viewed against the background of community development, which in a broad sense connotes a process of social learning through people's participation in promoting self-reliance (Burkey, 2000:60). Within the context of this study, it refers to the process of assisting needy people within a specific geographical area (the community), to address felt needs and improve their lives for the better. A commonly accepted approach to rural community development was followed, namely to establish programmes, which were referred to in this study as the nutritional

intervention. The intervention was developed within the PAR paradigm, which also created opportunities to experiences and capacity building within this field. Nutrition intervention developed within the PAR paradigm is thinly spread and much more still needs to be learned. The lessons learned from this study should be seen as foundation on which similar interventions can be built.

## **11.2 VALUE OF THE STUDY**

The value of the study is found in its major outcome, the model that was structured as a visual presentation of a nutritional intervention in a rural area on a specific commercial farm. The other outcomes (as described in Chapter 9) can also be viewed as contributions to the research and academic community. More specific aspects that I want to highlight are expressed in terms of the nutritional situation on Oranje farm, empowerment of the participants, measuring of hygiene and sanitation as well as the educational material that were developed.

### **11.2.1 Nutritional situation on Oranje farm**

A particular need was identified, namely improper hygiene and sanitation practices and conditions. These were evaluated by the research team according to set criteria and indicators and by using methods such as observations with field notes, group discussions and key informant feedback. The participants expressed that they had been encouraged and motivated to implement the stated hygiene and sanitation practices and conditions. They also expressed personal benefits such as cleanliness and well-being as well as the intentions to perform the desired behaviours. The participants also expressed being capable to keep up with the practices and conditions because they do not involve a large proportion of money, time and effort. An improvement in hygiene and sanitation conditions within the community was observed (as shown by the results from the scoring guide).

The intervention did meet the needs of the participants and were compatible with their cultural values. Therefore it can be said that the intervention was agreeable with the participants and meaningful to them. The research team also acted as catalysts and facilitators of the process towards strengthened capacity on community level. This process included dialogue, joint research, and empowering people to take action in solving their problems. I know that we have contributed to the welfare and quality of life of the people living on Oranje farm.

### 11.2.2 Measuring of hygiene and sanitation

Four different instruments were constructed to quantify the findings on hygiene and sanitation. These were a hygiene-and-sanitation (HAS) -knowledge test (see Addendum C), HAS-behavioural scale (see Addendum D), a HAS-scoring guideline (see Table 6.2) and an activity sheet on domestic hygiene (see Addendum E). The instruments were devised from consulted literature (Ahmed *et al*, s.a.; Almedon *et al*, 1997; Billig *et al*, 1999:22; Curtis *et al*, 2000:23) and formally established agreements that define the concepts were used. Common agreement within the research team and with the study leaders was obtained. Theoretical validity can therefore be claimed. The instruments are easy to understand and to implement and can be used as tools to assess the hygiene and sanitation situation in rural communities. It can also be applied to measure, understand and explain the success or failures of interventions in this regard. These instruments are therefore considered a valuable contribution of the study to future research.

The HAS-scoring guideline structurally measures hygiene and sanitation practices by using three dimensions of personal, household and environmental hygiene. Indicators relevant to each of these dimensions were based on observations done during the needs assessment phase of the study, but also compiled from the literature. A score was attached to each indicator. A maximum of 10 marks could be scored within each category, revealing excellent hygienic practices. More than eight marks were considered to be very good, and between five and seven as good. A score of three or four were indicative of poor hygienic practices, and less than three as very poor.

An activity sheet to identify certain illustrated 'domestic hygiene mistakes' was used as a measurement and an instructive tool. This tool showed a drawing of a person preparing food in a kitchen. Certain bad hygiene and sanitation practices and conditions were illustrated. The activity was to find ten 'mistakes' in this drawing, relevant to hygiene and sanitation practices. After encircling the mistakes, self-assessment follows which can continue into a discussion. Throughout the process, the participants are encouraged to verify their findings, make comments, and differ from and teach one another. Each mistake can be discussed separately. In this study, the only mistakes identified by all participants on both occasions (needs assessment and evaluation) were the presence of the cat in the kitchen and the overloaded dustbin with flies. The key informant's comment on this particular finding was that none of the community members own a cat and that everybody dislikes flies. She also reported that some participants had struggled with the interpretation of the picture. This picture should therefore be further adapted, refined and tested.

### **11.2.3 Educational material**

A set of educational material regarding hygiene and sanitation (in the form of posters) were promoted in this study as reminders to continue with the implementation of the promoted practices and conditions. The messages on these posters were clear, simple and relevant to the particular community. The focus of the posters was to change key behaviours. Unsanitary practices and conditions (as observed and measured) were translated into understandable messages, which were imprinted on the posters. An example of such a poster can be seen in Addendum B.

### **11.2.4 Generic model**

The model is not an exhaustive mapping of different theoretical perspectives, but a visual presentation of the process to follow in order to design, implement and evaluate community-based nutritional interventions. It is a framework wherein action can be taken methodological and systematic. It is not a recipe for action, but a guide to stimulate further intellectual cognitive activity. It is also not meant to constitute a final mould of steps, activities and techniques, but it rather offers an overview of an intervention in process. The model also reflects on the intervention as it was planned and implemented within the context of a specific commercial farm. Some of the ideas proposed in the model might be discarded in future time and others modified; others might be developed and documented more fully. The process is therefore considered never complete.

This model is comprehensive and logical and can therefore be considered as a teaching tool for researchers and scholars interested in community development. It is a methodological framework that can be used as guideline for similar projects in future times. It can be differentiated from other proposed models in terms of the inclusion of the evaluative and design phases. The evaluation phase was considered an effective way to measure the success of a community-based intervention that combines intervention and basic research. It took into account how well both the intervention and the basic research components are able to meet specific aims and are able to do so in a way that is found to be respectful, beneficial and participatory to the partners involved in the intervention. The model therefore incorporates principles of evaluative research from the starting point and highlights the process of ongoing evaluation. It also clearly distinguishes between process and outcome evaluation.

Designing and careful planning of programmes and interventions are processes that are very often implied in other proposed models. Andrien (1994) has stated that many interventions aimed at changing habits have failed in the past, mainly because of inappropriate planning. Therefore, this particular phase was specifically included to emphasise the importance of proper planning based on the outcomes of the analysis-phase.

The model also shows how and where research and action can be successfully combined with the participation of community members. Community-based interventions are not an iterative process to be continued by researchers, but a process that needs to be handed over to the community for them to continue by themselves within their our lives. The model clearly shows this line of reasoning.

### **11.3 INSIGHTS**

During this study certain insights were gained that guided me to formulate recommendations for further research. These insights should not only be for the record, but also to be incorporated into interventions to improve practices and behaviours of rural communities. The insights mainly centred on the factors that motivated or hindered change. A corollary of this is that a list of lessons learned could be formulated.

Behavioural change depends on individual motivations and a sense of personal relevance to the change. Judgements of personal assets or resources to make the change are also important. This should be accompanied by a willingness to overcome barriers, accompanied by environmental change such as the availability and accessibility of food, social and cultural norms, and community assets and empowerment (resources and collaborations) (Contento, Randell & Basch, 2002).

Studies have shown that people can change their behaviour if they see the need and want to change their own behaviour. Human beings have the capacity to exercise free will. Human behaviour is therefore not determined by antecedent causes. The question is whether it is ethical to develop effective behaviour control techniques. The quality of interventions should not be evaluated by its effectiveness in changing people's behaviour but by whether the people find the interaction worthwhile in terms of helping them decide how they want to lead their lives and make food choices (Buchanan, 2004:147).

Insight into the factors that motivated change helped to promote this process. These factors were that people should understand – in their own mode of thinking - that the change is for the better for oneself and for one's family. We as researchers should understand the influence and support of significant others (social pressure) when a new practice is adopted and that people should be assisted in the autonomy or the means and control to carry out the new practices (Van Wijk & Murre, 1992:12).

Nutritional problems are not only food-related. Other important factors include lack of access to health services, sanitation, knowledge, education and care. Food production programmes are also more effective when combined with promotional and educational activities. Nutrition education and the promotion of appropriate diets and healthy lifestyles are seen as a priority issue to address existing nutrition-related problems (FAO, 1996; FAO, 1997; Latham, 1997:9). Nutrition education is also mentioned as an important part of improving household food security. If nutrition education programs are to be effective in South Africa, it must be tailored to the current prevailing consumption patterns and the desired changes there-in, including the improvement of the nutrient density of children's diets as well as food hygiene and feeding practices (Labadarios, 2000). Other external factors that should have been considered more carefully were the political situation on the farm (relations between farmer/owner and farms workers), availability and scale of funds and experience and commitment of the research team.

## **11.4 RECOMMENDATIONS**

Recommendations to overcome the weaknesses of this study, as identified in Chapter 9, and to improve future studies, are firstly discussed in terms of managerial aspects, financial aspects, methodology (instruments and methods) and enabling factors that were not addressed. Other recommendations gained from my own insights and derived from the consulted literature follows.

### **11.4.1 Managerial aspects**

Research studies are complex and the exact outcomes are difficult to plan. The process towards the outcomes may sometimes be rather chaotic and often subjected to forces beyond the control of the research team. Research cannot be managed by the setting of very rigid goals and times when results must be achieved. Then it is no longer research (Ernø-Kjølhede, 2000:8). But good management is critical for sustained success in any intervention or research study (Allen &

Gillespie, 1992). A result of good management is that all the aspects of doing research come into focus.

Recommendations for the management of research studies (projects) are drawn from the field of project management. Two elements are identified within project management:

- Technical structure which includes activities like scheduling, financing, planning, controlling
- Human processes which included co-operation, communication and empowerment.

All projects need technical structure as well as human input. This research study would have benefited if a project manager were formally allocated who could have executed only managerial tasks. Preferably this manager must be totally committed, involved from the start-up, align with the underpinning philosophy. The central task of any project manager is to navigate between the conflicting demands of time, cost and performance (Ernø-Kjølhede, 2000:13), which makes it an impossible task to find the right person.

Alongside good management practices are well-formulated partnerships to enhance the credibility and scientific judgement of the intervention. According to Lansing and Kolasa (1996:809), a full disclosure of the partnership's nature and its goals and outcomes is essential. Criteria for partnerships should be formalised with defined roles clearly put forward in a strategic plan. Such a plan would have provided a framework for decisions. The research proposal could have been used as basis. The intervention should have been jointly developed, with more recognition to each other's contribution and expertise. This would have fostered respect and commitment to, and ownership of the intervention and its outcomes. Successful partnerships also depend on mutual trust, personal credibility, sharing of power and influence and ensuring high quality outcomes (Lansing & Kolasa, 1996:812).

An overriding concern is to establish and maintain realistic expectations for what the partnership can accomplish. Anticipating challenges and potential pitfalls help to ensure success of both the partnership and the intervention. The Society for Nutrition Education (SNE) has developed partnership program operating guidelines which included aspects of mutual goals and benefits, equity (sharing of resources and influence over outcomes), maintenance of integrity and respect, retaining independence in judgements and decision making, endorsement, equal access (SNE, 2004). These could have been laid down in written format for this intervention, which could probably assisted in better teamwork and more enthusiasm.

Due to the specific setting and circumstances on commercial farms, the role of the farmer was crucial for the success of the intervention. The farm owner needs to be much more involved and commitment to the intervention. Possibilities in this regard could have been more explored and addressed.

An established monitoring system is another recommended managerial tool. Monitoring in this study was done through regular visits, to motivate behavioural change, to improve the intervention process and to ensure that the identified needs were efficiently addressed. Revision of the facilitation plan as well as the conducted activities depends on a monitoring system. Monitoring is the process that binds the intervention together and should therefore be done throughout its life cycle. Such a system should already form part of the research proposal in the preparation phase.

#### **11.4.2 Financial aspects**

One of the most widely recognised procedures for examining programme efficiency is cost-benefit analysis. It quantifies the effects of an intervention and evaluates them relative to costs (Weimer, 1996:43). Cost-benefit analysis can be performed if all of the outcomes of a nutrition intervention can be captured in monetary units. By valuing both costs and benefits in the same monetary terms, they can be directly compared to determine the net economic impact of a program (Lambur *et al*, 2003).

In some instances, this is a straightforward task, but for this intervention it would have been less easily quantified. Valid endpoints that are usually used are morbidity and mortality. There are many ways to measure costs and benefits. Costs are usually straightforward while benefits are more complex. Those that can easily be valued in money are referred to as tangible; those that cannot easily be monetised are referred to as intangible. The time horizons over which costs and benefits have occurred or are expected to occur also need to be indicated. Intangible costs and benefits, especially benefits, can be measured more directly, without the added step of monetising them. Examples include knowledge gained, attitudes changed, skills acquired, practices adopted, and individual and societal end results. The various intervention components also need careful examining in order to find the most cost-effective mix (Phillips & Sanghvi, 1996). It is therefore recommended that a cost-analysis be done for this project that could guide future projects to operate more effectively.

Various fund applications were submitted for this study and intervention, but without success. In academic environments, post-graduate students are usually involved in the interventions. In my opinion, these students should not enrol for post-graduate qualifications, before funds had not been allocated for the intervention. Only during the second year of this study, funds were allocated from the Centre for Nutrition at the University of Pretoria.

### **11.4.3 Methodology**

Considerable preliminary work has to be done to develop and test evaluation instruments. We need to know whether the instruments we used are appropriate and have adequate psychometric properties. Even published instruments need to be cognitively tested with each new participative group. When testing of instruments are in place, we will be better able to make judgements about the effectiveness of interventions (Contento *et al*, 2002:21). The hygiene and sanitation tools used in this study need further refinement to be more sensitive towards the situations on commercial farms. Items, pictures and messages in these tools that were not fully understood, should be revised, tested and adapted to reflect the behaviours and conditions under scrutiny.

Another aspect included in this discussion is participation. Participation was such an integral part of the study and intervention that it would be valuable to measure its intensity. An applicable instrument can be devised in order to measure the various levels or intensities of participation that is taking place in interventions. Such information could help to understand and explain the success or failures of interventions. The instrument constructed by Schmidt and Rifle (1996) can be considered and adapted to the context.

### **11.4.4 Enabling factors**

It is not enough to merely understand behaviour and to design and implement appropriate strategies. We also have to anticipate potential pitfalls and detractors, particularly those who do not specifically support the intervention. We should identify which mediating variables are highly predictive of the behaviour of interest and then embark on studies that demonstrate the effectiveness of intervention strategies directed at these mediating variables before proceeding to measure efficacy and effectiveness of interventions. Participants in interventions, however, cannot be manipulated, nor can the environment be controlled in a natural setting in order to conform to an experimental paradigm designed to eliminate extraneous variables (Hubley, 1988:136).

In this study an enabling factor could have been the participants' husbands or partners. They were not involved in the study but showed great interest. If they were involved they could have supported the participants in the application of the desired hygiene practices and improvement of the sanitation conditions. I therefore recommend including support systems from the planning phase onwards. A strong support system, not only from spouses, but also from the local health authority, is a strong recommendation for future studies.

The insights gained were built into a repository of lessons about community-based interventions applicable to rural communities on commercial farms. This list (Box 11.1) also includes new problems that were discerned that demand further research.

### **BOX 11.1: LESSONS LEARNED FROM THIS STUDY**

- Formally allocate or appoint a project manager who can execute managerial tasks
- Formalise partnership agreements, specifying the obligations of all the partners to improve teamwork and the successful implementation of the intervention as well as to enhance the credibility and scientific judgement of the intervention
- Obtain commitment and involvement from the farm owner
- Criteria for partnerships should be formalised with defined roles clearly put forward in a strategic plan
- Identify workable strategies for community-researcher partnerships to address challenging problems of sharing power
- Establish a monitoring system
- The hygiene and sanitation tools used in this study need further refinement to be more sensitive towards the situations on commercial farms
- Devise an applicable instrument to measure the various levels or intensities of participation that is taking place in interventions
- Include support systems from the planning phase onwards, including spouses at household level, but also from the local health authority

### **11.5 FINAL THOUGHTS**

Throughout the formation of this thesis, I endeavoured to accomplish logical, inductive reasoning. The distinctive feature of inductive reasoning is that, even if the supporting evidence or premises

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are accepted as true, there is always the possibility that the conclusion may not be true (Mouton, 1996:71; Smaling, 1992:313). I have attempted to make a logical leap from the premises to the conclusions as determined by sufficient support (evidence, results, findings) for the conclusions. Inferential validity was therefore justified throughout the research process - from the proposal phase, to dissemination of results.

A study in Burkina Faso concluded that hygiene promotion can change behaviour and are more likely to be effective if built on local research and if it uses locally appropriate channels of communication repeatedly for an extended time (Curtis *et al*, 2001:518). I agree that well-planned interventions can make a difference in the lives of needy people, whether it is to improve health and nutritional status, or to assist them in the process of empowerment so that they can take responsibility for their own situations and become their own change agents.

A challenge will be to adopt research approaches that are conducive to human and social development. Such approaches include the promotion of full participation and empowerment of people in all intended activities. Researchers should be explicitly committed to conducting research that will benefit the participants; either through direct intervention, or by using the results to establish what action should be taken for changing the situation. Travers (1997:61) also pleads for this approach in nutrition education. He says that when the social world is the source of nutrition problems, the solutions to those problems lay in social change. People and communities who have been empowered through education that raises consciousness of the social roots of nutrition problems best initiate social change.

The University of Pretoria also places a high premium on involvement in the community and community-related projects (UP, 2002), implying that researchers also have a commitment to serve the community in ways that are contributing to their well-being in a meaningful way. A standpoint is therefore taken from a research and academic point of view that more research activities should be employed towards empowering needy people. Participation in the research process has been placed in the forefront of efforts to empower people to increase the quality of life in their communities.

PAR presents unique opportunities and challenges for implementing a process of dialogue, action, analysis and social change. PAR however is a comprehensive term describing how and why researchers embrace local knowledge when responding to the needs expressed by people in

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communities and empowering them to pursue and experience social change (Kleiner, 2002:3). I want to urge the National Department of Health to develop a comprehensive nutritional policy for improved nutrition on rural areas on commercial farms through support and encouragement of participatory-orientated projects and interventions.

Interpretations should flow from the outcomes of the interaction of the research team with the social world of the participants, shaped by the methods of inquiry and analytical procedures used. Qualitative methods should be enriched with quantitative data derived from anthropometric measures, biochemical tests, clinical evaluations and dietary intake measures. Other quantitative measures that can enrich qualitative data are household food security scales and diversity scores. These methods can help the research team and participants to assess the scientific significance and relevance of the situation.

To be a good researcher is not enough. Formal training in science practices can be useful but is not sufficient. The scholar in developmental studies must be familiar with the dynamics of participation and must develop to act as a facilitator and partner. The researcher must continually strive to combine excellence in the research process as well as in the intervention process. There are unique demands placed upon researchers who participate in PAR. Researchers should therefore be committed to the needs and problems of the people involved in the participatory process and furthermore realise that the primary beneficiaries are the participating community members and not necessarily the academic community. As Kleiner (2002:23) has put it: *“there is no glory in doing PAR”*.

Intellectual knowledge is power and researchers need to transfer the ownership of knowledge to the participating community. When the research team withdraw from the community, the skills, experience and newly acquired knowledge should not be taken with them (Stoecker in Minkler and Wallerstein, 2003:99). A community-based research study done within the paradigm of PAR cannot be seen as a research project. It is a social change project of which research is only one aspect. Research is only a methodological way to reach the particular goals as stated together with the participants. Such projects can only be conducted by academics that are willing to be participatory researchers; who are committed to transform the social relations of knowledge production and democratic participation in the research process.

When people are guided to identify their own needs and problems, to develop their own ideas, to discover their own plans and solutions, only then do they possess and put into practice what they have learned. The female adult group on Oranje farm was no exception. These people have a grounded understanding of their local conditions far beyond what researchers can gain, unless they live within that specific local community. Likewise, researchers bring with them skills and perspectives often not present in the local context, including knowledge about how to design and implement interventions and learning activities. This asymmetry in skills and local knowledge can be an important force in co-generating new understandings. The parties should engage with each other to make sense out of the situation (Greenwood & Levin, 1998: 118).

At the beginning of a research process, the outsider (researcher) makes decisions and teaches and trains local participants on topics that both consider important. At the same time, the outsider is responsible for encouraging insiders (participants) to control their own development process. It is the researcher's obligation to let go of the group near the end of the intervention. The researcher has to play the role of facilitator and change agent to initiate opportunities for participants to develop the capabilities and skills in order to take control and direct the ongoing developmental process according to their own interest (Babbie & Mouton, 2001:317). For participants to become active players in a change process, they must be allowed and supported to exercise power. The initially asymmetrical situation between participants and the researcher can be balanced only by the transfer of skills and knowledge from the researcher to the participants and the transfer of information and skills from the local participants to the outside researcher. In the end, the process must be taken over by the participants (Greenwood & Levin, 1998:119).

The struggle to solve important actions is the result of co-generative processes. The participants learn new things about the problems they are facing, which often revises their understandings in fundamental ways. The outcomes of this collective process (action and reflection) support the creation of new-shared understandings. The larger this shared grounds, the more fruitful the communication has been and the greater the likelihood is that further insights can be developed through reflection and actions based on this shared knowledge. This in turn can open up new ways of formulating problems, and thus result in ongoing learning from all parties.

I want to conclude with the following citation:

*“The past is not past: it lives in the present, in the resources tradition provides to its bearers, in the effects which continue to ripple through time long after an event has occurred, in the minds of self-conscious creatures bent on understanding who they are by grasping where they have been, and in the genetic explanations of social scientists and historians.*

*In this way the past changes as the present changes. Nor is the present just the present: to be an act every act anticipates a projected outcome and looks backwards to what preceded it for its motivation. The present thus contains within itself the past and the future” (Fay, 2001:244).*