THE DEVELOPMENT OF METHODOLOGIES FOR THE

DETERMINATION AND FACILITATION OF LEARNING

FOR DAIRY FARMERS.

A Thesis submitted by

Thomas Ian Phillips

for The Degree of Masters of
Agricultural Science (Extension).

University of Melbourne
September 1985.
DEDICATION

"That which we are, we are;
One equal temper of heroic hearts,
Made weak by time and fate, but strong in will
To strive, to seek, to find and not to yield".

Tennyson.

This study is dedicated to the memory of my Mother, Constance (Connie) Phillips, whom I loved and admired for her courageous attitude to learning and life. A stoic pioneer, she nurtured her children to set high personal standards and values, loving and respecting fellow man. She encouraged us to question, to seek answers to unknowns to learn from nature and those people around us taking particular care of their friends. She was by her own example the epitome of the creative self directed learner always looking for and generating opportunities for personal growth and innovation.

"Some men see things as they are and say why. I dream things that never were and say why not."

Robert Kennedy
I trust I can pass onto my children the ideals and values left by their grandmother, encouraging them to reach out and to challenge the world they live in.

"You are led

through your lifetime

by the inner learning creature,

the playful spiritual being

that is, your real self.

Don't turn away

from possible futures

before you're certain you don't have

anything to learn from them.

You're always free

to change your mind and

choose a different future, or

a different

past."

Richard Bach. (Illusions, 1977)
ABSTRACT

Agricultural extension is a specialised sector of adult education. During the evolution of this service, industry has concentrated on increasing the rate of adoption of new or better technology. Extension research has searched for improved methods of motivating farmers to change in directions seen as being beneficial by the agency.

The agencies have become increasingly accountable to their financial masters and the evaluation of extension effectiveness has been questioned more and more by both the client and the Extension Officer. In reaching for solutions agricultural extension has continued to re-examine and repackage the message or content. The people involved in extension (the Extension Officer and the Farmer Client) have largely been ignored in the examination of effectiveness. A large percentage of the farmer population has been viewed as not motivated to change.

The New Zealand dairy industry is largely dependent on efficient grassland farming systems. The dairy farmers are generally aggressively competitive in their quest for increased production, efficiency and achieving family goals, particularly farm ownership. The Australian dairy industry is by comparison very diverse faced with structural and climatic problems. The attitudes of the two populations are quite different.

However, this study has demonstrated that dairy farmers are very similar to other populations of adult learners in their learning behaviour. Most learning projects are related to on farm goals and are action based.
The farmers are very capable self directed learners, planning, managing and directing their own projects. The issue becomes not how to motivate people to change but rather to improve the active learners' competence to manage change successfully.

The methodology of investigation developed within this study evolved from a card sort to a 'conversational technique' based on practised counselling skills, supported by a visual display and Repgrid matrix computer analysis. This method exhibited considerable power to extract information and to display it in such a way that both the respondent and the investigator learnt by mutual agreement. The adoption of Personal Construct Theory as a theoretical framework enabled a strong philosophical stance to be taken, which shifted the emphasis from the content to the process of learning.

The conversational technique which was developed attained a better understanding of the process of how dairy farmers managed their learning. Other people form the major resource used by farmers, and their use depended on the perceived social distance from the learner. Each social strata, i.e. paid experts, acquaintances and intimates, played different and specific roles all of which were very important to the learner and his project management. A learning model was developed using the conversational pathways and interpreting how people were used by the learner. The support information provided by the use of the Repgrid, clearly indicated the importance to the farmer of those people with a similar cognitive structure. Membership of this group was an indication of an extension officers effectiveness.
The dairy farmers interviewed were all clients of various extension officers in either Victoria or New Zealand. Agricultural professionals were numerically a minor group of the total people resources used by dairy farmers whereas other farmers were a major group. The effectiveness of extension officers depended on a number of factors including an empathy with the farmers' objectives, a clear understanding of the learning process and his part in that process, and a sensitivity to the stress of personal change and decision making. It is also essential that Extension Officers can communicate technical and managerial information in an effective manner.

The role of extension in this new era of an information society will change from being simply purveyors of information to one of assisting people to change. Professional staff need to challenge farmers to learn both about the nature of change and the principles of their business. Extension agencies will be effective in achieving their organisational goals by assisting clients to interpret and use information so contributing to the already effective, on going, rural adult learning activity. The challenge is for extension to change.
Acknowledgements

In attempting my own "major learning project" I believe I have 'come to know' much more about myself and to have a new respect and love for those people who contribute (often unwittingly) to my own learning experiences. The providers of good information and the people who challenge the new frontiers with ideas, innovation and creative thinking. The acquaintances who can stand aside from the problem or opportunity and objectively question the core issues. Finally, the intimate experts, largely ignored in the past, but who stand at the heart of every learning project providing support, judgement and trust. Success seems to be an interdependence between the learner and all of these contributing people.

I wish to convey my admiration and sincere thanks to the following people:

- The dairy farmers with whom I have worked with sharing problems and opportunities as a farm consultant. Special thanks goes to those farmers and their wives who openly shared their experiences with me when interviewed for this study. It was an exhilarating experience to be a shareholder of your learning crises, decisions some successful some not so successful and innovations.

- Dr. Peter Salmon, whose creative thinking extended my own thinking and imagination, challenging me to change direction. Peter, "The Counsellor", helped me to reach a new understanding of self and how people adapt to change. The real challenge is to continue to grow.
- Gary Fowler, Bob Gray, Linda Schollum, and Lyn Robbins who became my intimate experts, contributing more than they will ever realise. I care for them as much as I love and trust them.

- the New Zealand Dairy Board Consulting Officer team undoubtedly the most effective group of professionals working with dairyfarmers. A group to whom I was proud to be a team member, who have got the 'values' worked out, but must innovatively examine the future.

- Messrs Hugh Kirton, Jim Stewart, Mike Joyce, and David Sellars, my former colleagues whose expertise and professionalism I greatly respect.

- Fellow post graduate students and faculty staff, especially Claudia Underwood, Robert Woog, Horrie Poussard, Les Clarke, John Cary and Barrie Bardsley, whose argument and debate allowed ideas to be vented.

- Staff of University of Melbourne and the Victorian Department of Agriculture, especially Dr. Stuart Hawkins, Harry Edgoose, Andrew Gallagher and Peter Haynes.

- Mr. Jeff Stichbury, Past Director of the Farm Production Division of the New Zealand Dairy Board for his support and the granting of study leave.

- the small army of artists, word processor operators and typists, who took my hand written manuscript and created a professionally
typewritten document, especially Dianne Mason-Woods, Dot Sim, Jackie Bellamy, Lyn Robbins and Marisa Yeaman.

- Ossie Phillips, my father, who, together with my late mother, brought us up in a creative learning environment. He is a great example of a lifelong learner who has encouraged me to complete the thesis. His expertise in proofreading and English grammar is greatly appreciated.

- Jill, my wife, Emily and Lyndon our dear children, for not giving up hope that the task would be completed. Family are very special members of one's intimates, whose support and love are essential to one's well being.
### CONTENTS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td></td>
</tr>
<tr>
<td>Acknowledgements</td>
<td></td>
</tr>
<tr>
<td>Contents</td>
<td></td>
</tr>
<tr>
<td>Index to Tables</td>
<td></td>
</tr>
<tr>
<td>Index to Figures</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Section 1

<table>
<thead>
<tr>
<th>Subject</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of Agricultural Support Services</td>
<td>13</td>
</tr>
<tr>
<td>Agricultural Extension</td>
<td>17</td>
</tr>
<tr>
<td>Adult Education</td>
<td>25</td>
</tr>
<tr>
<td>Scientific Inquiry - Challenging the Dominant Paradigm</td>
<td></td>
</tr>
<tr>
<td>with Regard to the Social Sciences</td>
<td>32</td>
</tr>
<tr>
<td>Models of Man</td>
<td>35</td>
</tr>
<tr>
<td>George A. Kelly - Personal Construct Theory</td>
<td>37</td>
</tr>
<tr>
<td>What is Learning</td>
<td>42</td>
</tr>
<tr>
<td>A Fundamental Unit for Investigation - conversational</td>
<td></td>
</tr>
<tr>
<td>Techniques</td>
<td>56</td>
</tr>
<tr>
<td>The Model for Research - Implications for Literature</td>
<td></td>
</tr>
<tr>
<td>Review</td>
<td>61</td>
</tr>
</tbody>
</table>

#### Section 2
Section 3

Stage One : Procedure (Victoria) 74
Stage Two : Procedure (Melbourne) 91
Development of "Clinical" Methodology 93
Results - Stage Two : Melbourne 95
Stage Three : Procedure (Victoria) 103
Results - Stage Three 106
Interview Discussion 115
Stage Four : Procedure (Waikato N.Z.) 122
Results - Stage Four 123
Interview Discussion 134

Section 4

Stage Five - Procedure (Manawatu N.Z.) 143
Results - Stage Five 147
Summary of Information from Case Illustrations 154
Respondent No. 2 - Case Illustrations 158
Interview Discussion 161
Respondent No. 3 - Case Illustration 167
Interview Discussion 172
Respondent No. 6 - Case Illustration 180
Interview Discussion 184
Respondent No. 11 - Case Illustration 191
Interview discussion 195
Respondent No. 12 - Case Illustration 206
Interview Discussion 211
Respondent No. 14 - Case Illustration 221
Interview Discussion 225

Section 5

Discussion 234
Research Technique 235
Learning Strategies 235
The Development of The 'Clinical' Methodology 237
Stress - Personal Crises of Learning - Decision Making 239

Section 6

The Learning Conversation Model 244
Learning Strategies of Adults 246
People - the Most Valuable Learning Resources 249
<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Consulting Officer Work Program</td>
<td>3</td>
</tr>
<tr>
<td>2 Production per Hectare by Discussion Group Contact</td>
<td>4</td>
</tr>
<tr>
<td>3 Summary of Consulting Officer Activities 1979-80</td>
<td>6</td>
</tr>
<tr>
<td>4 Consulting Officer/Dairy Farmer Contact</td>
<td>7</td>
</tr>
<tr>
<td>5 Consulting Officers Job Evaluation</td>
<td>8</td>
</tr>
<tr>
<td>6 Axiomatic Differences between the Rationalistic and Naturalistic Paradigms</td>
<td>33</td>
</tr>
<tr>
<td>7 Learning Activity Cards used in Stage One</td>
<td>68</td>
</tr>
<tr>
<td>8 Non-Human Learning Resource Cards used in Stage One</td>
<td>69</td>
</tr>
<tr>
<td>9 Research Development Stages - Summary</td>
<td>73</td>
</tr>
<tr>
<td>10 Stage One Demographic Data - Farm Production Statistics (1978-79)</td>
<td>77</td>
</tr>
<tr>
<td>11 Learning Project Data (12 months)</td>
<td>78</td>
</tr>
<tr>
<td>12 Summary of Learning Project Data</td>
<td>79</td>
</tr>
<tr>
<td>13 Kind of Educational Accomplishment</td>
<td>79</td>
</tr>
<tr>
<td>14 Length of Time Spent Learning</td>
<td>80</td>
</tr>
<tr>
<td>15 Day to Day Planner</td>
<td>81</td>
</tr>
<tr>
<td>16 Reasons for Beginning Learning Project</td>
<td>81</td>
</tr>
<tr>
<td>17 Credit</td>
<td>82</td>
</tr>
<tr>
<td>18 Problems</td>
<td>83</td>
</tr>
<tr>
<td>19 Case Illustration: Respondent A - List of work related learning projects</td>
<td>84</td>
</tr>
<tr>
<td>20 Respondent C : Strategy and Resources used</td>
<td>85</td>
</tr>
<tr>
<td>No</td>
<td>Section</td>
</tr>
<tr>
<td>----</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>21</td>
<td>Respondent D: Strategy and Resources used</td>
</tr>
<tr>
<td>22</td>
<td>Respondent C: Project - Selecting a New Bull</td>
</tr>
<tr>
<td>23</td>
<td>Sequence Ranking - Activity Cards</td>
</tr>
<tr>
<td>24</td>
<td>Overall Ranking of Learning Resources</td>
</tr>
<tr>
<td>25</td>
<td>Stage Two Demographic Data</td>
</tr>
<tr>
<td>26</td>
<td>Learning Project Data</td>
</tr>
<tr>
<td>27</td>
<td>Summary of Learning Project Data</td>
</tr>
<tr>
<td>28</td>
<td>Eg. 1 Respondent F - Project - Making of Home Wines</td>
</tr>
<tr>
<td>29</td>
<td>Eg. 2 Respondent G - Investigation into U.S.A. Education</td>
</tr>
<tr>
<td>30</td>
<td>Stage Three Demographic Data</td>
</tr>
<tr>
<td>31</td>
<td>Learning Project Data</td>
</tr>
<tr>
<td>32</td>
<td>Summary of Learning Project Data</td>
</tr>
<tr>
<td>33</td>
<td>Title of Major Learning Project - Chosen for Discussion</td>
</tr>
<tr>
<td>34</td>
<td>Summary of Stage III People used classification</td>
</tr>
<tr>
<td>35</td>
<td>Degree of Intimacy</td>
</tr>
<tr>
<td>36</td>
<td>Case Illustration - Respondent L</td>
</tr>
<tr>
<td>37</td>
<td>Most Important to Least Important People</td>
</tr>
<tr>
<td>38</td>
<td>Stage Four Demographic Data</td>
</tr>
<tr>
<td>39</td>
<td>Learning Project Data</td>
</tr>
<tr>
<td>40</td>
<td>Summary Stage IV People used classification/occupation</td>
</tr>
<tr>
<td>41</td>
<td>Extension Officers were classified</td>
</tr>
<tr>
<td>42</td>
<td>Summary of Learning Project Data</td>
</tr>
<tr>
<td>43</td>
<td>Title of Major Learning Project - chosen for Discussion</td>
</tr>
<tr>
<td>44</td>
<td>Summary of Learning Project Data</td>
</tr>
<tr>
<td>45</td>
<td>Summary of Previous Studies</td>
</tr>
</tbody>
</table>
46  Respondent U  Case Illustration  
47  Stage Five  Demographic Data  
48  Learning Project Titles  
49  People/Cost/No of Petals – Stage Five  
50  Summary Stage V People used classification/occupation  
51  Extension Officers were classified  
52  Summary from Stages III, IV, V  
53  Extension Officer (Total N = 54)  
54  Nature of Learning Projects (N=6) from Petal Diagrams  
55  Learners' classification of people used (N = 6)  
56  Grouping the above information  
57  People's Occupation  
58  Case Illustration Respondent No. 2  
59  Most important to least important people  
60  Case Illustration Respondent No. 3 – Purchase  
   additional land  
61  Case Illustration – Respondent No. 6 – Sharemilking job  
62  Case Illustration – Respondent No. 11 – Leasing Farm  
63  Case Illustration – Respondent No. 12 – Sharemilking  
   position  
64  Case Illustration – Respondent No. 14 – Purchase Land  
65  Overall Summary of Learning Project Data (N = 25)
## INDEX TO FIGURES

<table>
<thead>
<tr>
<th>FIGURE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A Resource Model for Agricultural Support Services</td>
</tr>
<tr>
<td>2</td>
<td>Man the Scientist</td>
</tr>
<tr>
<td>3</td>
<td>Model of the Nature of Change</td>
</tr>
<tr>
<td>4</td>
<td>Model of the Nature of Change (Kubler Ross)</td>
</tr>
<tr>
<td>5</td>
<td>The Ways in which a Person's Construct System may be Modified by Participation in a Experiential Learning Programme</td>
</tr>
<tr>
<td>6</td>
<td>Experiential Learning Model (Kolb)</td>
</tr>
<tr>
<td>7</td>
<td>Single and Double Loop Learning</td>
</tr>
<tr>
<td>8</td>
<td>The Personal Interaction Model</td>
</tr>
<tr>
<td>9</td>
<td>Research Development Stages - Location Map</td>
</tr>
<tr>
<td>10</td>
<td>Respondent L - Petal Diagram - Classification</td>
</tr>
<tr>
<td>11</td>
<td>Respondent L - Petal Diagram - Occupation</td>
</tr>
<tr>
<td>12</td>
<td>Respondent U : People Classification</td>
</tr>
<tr>
<td>13</td>
<td>Respondent U : Occupational Groups</td>
</tr>
<tr>
<td>14</td>
<td>Respondent U : Development of Learning Project</td>
</tr>
<tr>
<td>15</td>
<td>Respondent W : Occupation Groups</td>
</tr>
<tr>
<td>16</td>
<td>Gross cost V No. of People (N = 6)</td>
</tr>
<tr>
<td>17</td>
<td>Respondent 2 : Occupational Groups - Farm Subdivision</td>
</tr>
<tr>
<td>18</td>
<td>Respondent 2 : People Classification</td>
</tr>
<tr>
<td>19</td>
<td>Respondent 2 : Repgrid</td>
</tr>
<tr>
<td>20</td>
<td>Respondent 3 : People Classification</td>
</tr>
<tr>
<td>21</td>
<td>Respondent 3 : Occupational Groups</td>
</tr>
<tr>
<td>22</td>
<td>Respondent 3 : Repgrid</td>
</tr>
</tbody>
</table>
23 Respondent 6 : People Classification - Sharemilking Job
24 Respondent 6 : Occupational Groups
25 Respondent 6 : Repgrid
26 Respondent 11 : People Classification - Leasing Farm
27 Respondent 11 : Occupational Groups
28 Respondent 11 : Repgrid
29 Respondent 12 : People Classification - Sharemilking

Position
30 Respondent 13 : Occupational Groups
31 Respondent 12 : Repgrid
32 Respondent 14 : People Classification - Purchase Land
33 Respondent 14 : Occupational Groups
34 Respondent 14 : Repgrid
35 The Helping Process - R.R. Carkhuff
36 A Model - The "Learners' Social Environment and Learning Pathway (Petal Diagram)
37 Occupational Groups - People who the Farmers used in their learning/decision making projects.
38 How Dairy farmers interviewed classified the Extension Officers they used in their learning project.
INTRODUCTION

NEW ZEALAND DAIRY BOARD CONSULTING OFFICERS - AN ON FARM EXTENSION SERVICE TO DAIRY FARMERS

Low cost and high productivity are essential qualities in New Zealand's dairy farming system. With income levels determined by the difference between costs of production and prices gained for exported products, dairy farmers have always depended upon management systems designed to take maximum advantage of New Zealand's temperate climate and suitability for grassland farming. Therefore new management practices which are likely either to increase productivity and/or to reduce the costs, result in an increase in farm efficiency.

Following developments in herd recording in the 1920's and 1930's, the New Zealand Dairy Board introduced a Consulting Officer (farm) service, as part of the Herd Improvement Plan (1939). Under the plan, data on a wide range of herd and farm management aspects are collected and processed through the Farm Production Division of the board. The plan is designed to increase productivity and dairy incomes through a wider use of herd production recording and a national use of other farm management data.

Areas of management requiring research are identified, research is conducted and the results are presented for farmers to utilize. Current development, in addition to the Consulting Officer service, includes a sophisticated herd recording and data processing system and the Dairy Board's artificial breeding service.
During 1979-80 seventeen Consulting Officers (C.O's.) serviced the dairying areas of New Zealand. The importance of their role increases as farmer demand for technology develops. Typically those coming into the Consulting Officer service are graduates in agricultural science with a specialist knowledge in such topics as animal science, agronomy, farm management and agricultural economics. Each Consulting Officer is allocated an area comprising approximately 1,000 dairy herds. To service their particular areas, Consulting Officers work from their homes, and a minimum of administrative duties has allowed them to concentrate on being a highly mobile and versatile advisory force. Three major extension methods have been developed to meet the needs of farmers and to use the C.O.'s time to best effect; individual farm visits, discussion groups and field days.

Almost all individual farm visits are made in response to requests from farmers, and these occupy an estimated one third of each consulting officer's time. The philosophy of the 'whole farm' approach has been an integral part of their operation, as the Consulting Officers are essentially generalists or general practitioners. The objective is to determine the best combination of the resources which can be used to achieve the farmer's personal objectives. Financial discussions in recent years have become part of almost all extension visits to farmers. Each Consulting Officer records the main topic of discussion at each farm visit and an analysis of 3,000 consulting officers' visits reveals the major areas of farm management being discussed.
TABLE 1: CONSULTING OFFICER WORK PROGRAM

PASTURE MANAGEMENT 40%
NUTRITION/ANIMAL HEALTH 15%
HERD RECORDING/BREEDING 8%
FARM DEVELOPMENT 7%
FARM PURCHASE 6%
OTHER FINANCIAL INCLUDING HERD PURCHASE 7%
USE OF NITROGEN 3%
GENERAL 14%

Source: (Mc KENZIE 1979) C.O.'s Newsletter
April 1979.

The initial objective of a Consulting Officer service was to assist farmers in the use and understanding of the Dairy Board's technical services related to herd recording and productivity. The 'whole farm' approach and the determination of the best combination of the farmer's resources, which can be used to achieve the farmer's personal objectives (J.W. Stichbury, pers. comm.) broadens the original extension objective of the team. The Consulting Officer's prime function is now one of adult education.

The farmer to Consulting Officer ratio of 1000:1 has necessitated the development of group discussion techniques. The practice of establishing discussion groups began in the early 1950's and now occupies a further third of the average Consulting Officer's time. The groups are concerned primarily with increased productivity. Comparisons of management techniques can be made and friendly competition often develops between members in setting and achieving production standards. If groups are successful they provide an
opportunity for discussion of alternative solutions with different perspectives from a wealth of personal experience within the group itself. (Phillips, 1977) The Consulting Officer acts as a resource person, passing on information from other farmers' experiences as well as injecting new information from research centres. Socially they are an important contact for the farmer. However, if the task of increasing productivity is lost sight of, then the groups lose their extension impact and become mainly of social value. While group discussions reduce the number of individual farm visits that would otherwise be required to achieve the same effect, they also stimulate a demand for additional individual advice in greater depth.

A number of conference papers have been given in New Zealand (Dawson & Smith, 1979; McKenzie, 1980; Stewart and Watts, 1982), showing that increases in milkfat production, in stocking rate and in the use of artificial insemination and herd recording are associated with membership of dairy farm discussion groups. The initiative for group formation normally stems from farmers within a locality.

TABLE 2:

<table>
<thead>
<tr>
<th>ADVISORY SERVICE</th>
<th>FARMER CONTACT</th>
<th>PRODUCTION/HA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consulting Officer only</td>
<td>17%</td>
<td>331</td>
</tr>
<tr>
<td>Other or combined Advisory contact including M.A.F.</td>
<td>40%</td>
<td>322</td>
</tr>
<tr>
<td>No Advisory Contact</td>
<td>43%</td>
<td>295</td>
</tr>
</tbody>
</table>

Source: NZDB Cow Census 1981/82.
For the 1981/82 season the Consulting Officer discussion group membership represented 25% of all farms - some appear in the combined 40% advisory contact.

Field days combined with time spent on in-service training, meeting attendance, article writing, radio talks and other work related to the herd improvement plan, account for the remaining third of the consulting officers' activities.
### Table 3:
SUMMARY OF CONSULTING OFFICERS ACTIVITIES 1979-80.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>TOTAL</th>
<th>AVERAGE PER CONSULTING OFFICER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FARM VISITS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First request visits</td>
<td>290</td>
<td>17.5</td>
</tr>
<tr>
<td>Request visits</td>
<td>3,282</td>
<td>197.7</td>
</tr>
<tr>
<td>Unsolicited first visits</td>
<td>181</td>
<td>10.9</td>
</tr>
<tr>
<td>Unsolicited follow up visits</td>
<td>687</td>
<td>41.1</td>
</tr>
<tr>
<td>Survey visits</td>
<td>288</td>
<td>17.3</td>
</tr>
<tr>
<td>Total individual farm visits</td>
<td>4,728</td>
<td>284.8</td>
</tr>
<tr>
<td>Farms visited on discussion groups days</td>
<td>2,872</td>
<td>173.0</td>
</tr>
<tr>
<td><strong>Total Farm Visits</strong></td>
<td>7,600</td>
<td>457.8</td>
</tr>
<tr>
<td><strong>DISCUSSION GROUPS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meetings</td>
<td>1,583</td>
<td>95.4</td>
</tr>
<tr>
<td>Attendance</td>
<td>17,696</td>
<td>1,082.5</td>
</tr>
<tr>
<td><strong>FIELD DAYS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organised by Consulting Officer</td>
<td>71</td>
<td>4.3</td>
</tr>
<tr>
<td>At which Consulting Officer spoke</td>
<td>76</td>
<td>4.6</td>
</tr>
<tr>
<td>Attendance</td>
<td>3,974</td>
<td>239.4</td>
</tr>
<tr>
<td><strong>MEETINGS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organised by Consulting Officer</td>
<td>17</td>
<td>1.0</td>
</tr>
<tr>
<td>At which Consulting Officer spoke</td>
<td>60</td>
<td>3.6</td>
</tr>
<tr>
<td>Attendance</td>
<td>3,407</td>
<td>205.2</td>
</tr>
<tr>
<td><strong>RADIO BROADCASTS</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Source: Farm Production Division Annual Report No.56
Most telephone enquiries are conducted during the evenings. A high proportion of C.O's time is spent on farms as the officers do not have an office, nor do they have any regulatory responsibilities. Consulting officer/farmer contact is very high, so too is the number of farms actually visited.

TABLE 4:
CONSULTING OFFICER/DAIRY FARMER CONTACT

<table>
<thead>
<tr>
<th>Av. per Officer</th>
<th>Total as % No. of Herds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of farmers met</td>
<td>260</td>
</tr>
<tr>
<td>Number of farmers visited</td>
<td>185</td>
</tr>
</tbody>
</table>

Ref. Pg.39 59th Farm Production Report N.Z. Dairy Board

This is an industry-based extension service, available to all dairy farmers - there is no direct charge but the industry is levied via manufactured dairy products and assisted by grants from the Government. The co-operative basis of the industry in New Zealand is further illustrated by the fact that all dairy farmers contribute to the cost of the service and they have equal opportunities to benefit from it.

In reviewing the development of this service, several points emerge as being important

1) The emphasis has always been on a whole-farm approach with maximum on-farm contact.

2) The farmer to Consulting Officer ratio has always been high (1000:1). In spite of the need to use mass education methods,
consulting officers have managed to maintain a very high on-farm contact rate.

3) The service has enjoyed good support from the industry, due mainly to the high contact rate. In addition some of the earlier consulting officers established reputations for themselves as being quite outspoken within the industry.

4) The nature of the job, work content and the training of the staff have changed significantly, corresponding with a large increase in staff numbers (6:1939, 17:1979 expect 26 in 1984).

At an in service training seminar the Consulting Officer team was asked to define their extension role as each of them viewed it.

TABLE 5:
CONSULTING OFFICERS' JOB EVALUATION

ANALYSIS OF RESPONSES:

QUESTION 1.
"What is the main purpose of your job?"

<table>
<thead>
<tr>
<th></th>
<th>0-2 yrs</th>
<th>3-9 yrs</th>
<th>10-30 yrs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helping farmers to meet their objectives</td>
<td>8</td>
<td>-</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Helping farmers with decision making</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Providing farmers with information, ideas, stimulation</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Gaining personal income and job satisfaction</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Persuading farmers to achieve</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>6</td>
<td>7</td>
<td>27</td>
</tr>
</tbody>
</table>
QUESTION 2.

"To achieve your purpose in 1 above what is your prime role with the individual farmer?"

<table>
<thead>
<tr>
<th>Description</th>
<th>0-2 yrs</th>
<th>3-9 yrs</th>
<th>10-30 yrs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helping farmers in various ways to achieve wise decision making</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Providing a helping relationship for the farmer</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>A provider of information and ideas</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>An educator and interpreter of information</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>To make contact with as wide a selection of farmers as possible</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
<td><strong>6</strong></td>
<td><strong>7</strong></td>
<td><strong>27</strong></td>
</tr>
</tbody>
</table>
QUESTION 3.

"If you were designing the perfect C.O. what two competencies do you believe most vital for effective operation?"

<table>
<thead>
<tr>
<th>Competency</th>
<th>0-2 yrs</th>
<th>3-9 yrs</th>
<th>10-30 yrs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>An effective communicator, listener</td>
<td>18</td>
<td>4</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>People skills, ability to motivate, educator</td>
<td>7</td>
<td>-</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>A genuine wish to help people</td>
<td>-</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>A pleasant, compatible, stimulating personality</td>
<td>-</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>A logical thinker</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Ability to recall information, seek knowledge</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Confidence to be imaginative</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>A feeling for farming</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Technical competence</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>28</td>
<td>12</td>
<td>14</td>
<td>54</td>
</tr>
</tbody>
</table>

Source: G. Tate Survey December 1982

Several interesting points arise from this survey of the Consulting Officer team in December 1982. The 'provider of information' role is seen only as the prime role by the new and less experienced extension officers.

From the responses to Question 3, people and communication/helping skills predominate with technical competence only registering one vote from a junior officer. Either the officers regarded technical competence as a low priority or it was accepted by the more experienced that technical competence was a pre-requisite for the job.
The group placed heavy emphasis on helping skills rather than technical competence. This emphasis contrasts with present undergraduate training in agriculture.

Undergraduate training has assumed paramount importance for the need to be technically competent, and the courses offer little or no communication/helping skills or extension practice and philosophy. Universities have assumed that human skills either are selected for by employers at the time of initial interviews or gained through in service training. Employers tend to view "helping skills" as either being gained through practical experience in the field or part of a "good personality", rather than a component of training (Phillips, 1981).

The Farm Production Division states the extension role of the Consulting Officer team in the following two statements:

1) To help the farmer achieve his own objectives, so long as they are not antagonistic towards the overall objectives of the industry.

2) To assist in increasing the net profitability of all dairy farmers.

The overall goal is to assist the dairyfarmer to make better decisions for himself rather than to be told what to do.

The New Zealand Dairy Board's Consulting Officer service has this declared function, which has to be more than just a delivery of information. The farmer needs to be respected as a self directed learner, and learning be seen and understood as a process of understanding initiated by the learner.

The extension officer requires helping skills, to best facilitate learning within a working relationship with the learner.
A better understanding of the learner, the learning process and his own person will place the extension officer in a better strategic position to assume a helping role with the learner.

If the New Zealand Dairy Board's Consulting Officer service is seen by the New Zealand dairyfarmer as being relevant, then the author believes the service needs to be seen, primarily as an adult educational unit successfully helping with the learning efforts of the dairy farmers (Phillips, 1982).
DEVELOPMENT OF AGRICULTURAL SUPPORT SERVICES

Demeter the classical Greek goddess of fertility and productivity (Agriculture) "...presided over the harvest and all the agricultural labours which attend it. Before departing, however, she wished to show her gratitude to her hosts; she gave Triptolemus, Celeus' oldest son, the first grain of corn, and taught him the art of harnessing oxen to the plough and how to sow the soil with grain from which would spring fair harvests. She gave him well a winged chariot harnessed with dragons, and bade him travel the world spreading the benefits of agriculture among all men". New Larouse Encyclopedia of Mythology-Graves 1959 p. 150

Throughout history, agriculture and man's attempt to control his environment for food production have been an integral part of cultural development. Even industrialization was dependent on a viable agriculture. In early agricultural development in the U.S.A., farmers were spurred on by the 'Protestant work ethic'. In 1862 the Morrill Act was passed establishing the U.S. Department of Agriculture and Land Grant Colleges, followed in 1887 by the Hatch Act (Experimental stations at colleges). In 1914 the 'County agent' was born from the Smith Lever Act. In the U.S.A., the support services evolved in a uniform manner under the umbrella of the universities. In contrast, Departments of Agriculture in the United Kingdom, Australia and New Zealand began as regulatory bodies and subsequent development has been rather haphazard, largely dependent on the economic well being of the industry. Research, extension and education have largely been viewed as the responsibility of the state. Technological improvements have contributed to growth in organisational changes. A thriving agriculture has meant more rapid expansion of the supporting services.
Gilson, quoting Burr (1969), put forward the concept of an extension continuum, i.e. development through a series of clearly definable stages.

"It will commence with activities mainly in the technological field but, after a period of adjustment, become more deeply concerned with the economic effects of new technology and with optimizing resource use on individual farms and in the industry as a whole. The time will come when this work ceases to be of major importance and the advisory service will be involved with sociological problems not only of the farmer but also of the rural community in which he lives. In the final phase, the service takes on a psychological aspect and concerns itself with the hopes and aspirations of individuals throughout the range of their activities and not simply in connection with the earning of their livelihood."

Gilson in Burr (1969) P.127

Some may argue that Gilson over-simplifies the situation, and that the process is not one where one phase replaces another, but one in which the service has to take on new commitments as time goes by. Crouch (1974) described four development stages in Australia in a similar vein, in terms of attempts to improve extension.

The influence of the natural and biological sciences, and within them the paramount importance of husbandry, has meant searches for cause-effect relationships throughout agriculture, including extension. Adoption curves were drawn as classic growth or S curves. Diffusion theory (Beal and Bohlen 1956, Rogers and Shoemaker 1971), rate of adoption and one-way linear communication models dominated extension, as everyone looked for
cause-effect relationships based on stimulus-response behavioural thinking.

Agricultural support services all have some problems in common, a major one being a very diverse population of farmers. (Kaplan, 1979; Willis, 1982). Farmers represent all age groups and a wide range of intelligence. Their formal education ranges from primary schooling to tertiary honours degrees.

"The older half of our national stock of farmers will have learnt their trade working beside older men, imbibing the virtues of hard work diligently carried out combined with a highly developed acquisitive instinct, rather than those of the much harder discipline of thinking and study."

Owens (1969) P.137

Individual attention from extension/education services has been available to all, but it has been mainly the young, keen and able who have utilized these services. There is a 'spiral of opportunity' here; the better educated will get the best, and most advice - the survival of the fittest at work.

Whether farmers, extension officers and research are acting as an effective triad, has not been answered (nor attempted) here, but this too is highly relevant today, especially in regard to successfully obtaining financial support for projects within the rural community. The rural industries want to see an effective triad working. Neither extension nor research (particularly applied research) can work in isolation from each other or the farmer population. If they are or have been the technology and/or the update of that information will be greatly reduced.
FIGURE 1 Resource Model for Agricultural Support Services - an effective working trait

Extension services

Communication of ideas knowledge

Other resources
Agri-business lending inst. professionals
Farmer experience knowledge

Government industry research knowledge

Pool of agricultural knowledge

Farmer, other users
AGRICULTURAL EXTENSION

Extension organisations in both New Zealand and Australia have followed traditional views and philosophies of extension which regard the farmers as a target client group, emphasising delivery systems which will get the message across to the client. Government agricultural policy objectives invariably emphasize continued or increasing production (or increases in productivity) of high quality, high value - low cost produce that will result in better standards of living for rural people with greater long term security and stability of income. The specific extension objectives are less clear however, with individual officers clinging to the belief that they are acting in the clients best interests by helping them to help themselves, i.e. working for the individual farmer to best serve his needs. Due to reductions in "the agricultural vote" however, agencies are changing the priority away, possibly from the interests of the individual farmer, to enable them (agencies) to meet their institutional needs, as seen in the following statement from the Director of Advisory Services division, (ASD) Ministry of Agriculture and Fisheries (NZ).

".....priority will be given to products and production systems for exports and to clients most likely to take up the advice....."

Hercus (1980)

This dilemma of the impossibility of extension officers serving two masters - the farmer and the agency - and the diverse policies within an extension organisation, brought to our attention by Tate (1982), suggests internal policies are being pressured by outside economic factors.

Much attention is currently being given to issues such as:- to which audience should extension direct its energies, what is the changing role of
extension and to evaluation of purpose and effectiveness of services provided. Gibbs (1982)

"...like any other service, (A.S.D.) has no natural right to exist and will prosper and develop only as it reflects, perhaps anticipates, the needs of its clients."

Hercus (1978)

However, Hercus (1978) believes the argument not to be one of a lack of technical or managerial knowledge but a lack of will or motivation to apply it. This is not to suggest that government advisory services do not have a major role in information delivery but that the department's efforts should be aimed at only those farmers who are sufficiently motivated to change. Client needs have been considered through an institutional frame of reference, therefore emphasis remains on organisation and information delivery rather than on being client-centred. Farmers, when given an opportunity, quickly highlight effectiveness in terms of the degree of orientation towards client-centred techniques that an individual extension officer may have.

"The personal relationship between the farmer and the extension worker is one of the most important aspects. Those that succeed do not fit into any mould, but they are usually good with people, and farmers in particular."

Frith (1978)

Frith (1978) maintains further that the availability of information is in fact good, the problem being whether the farmer will accept the information provided. Frith makes a subtle but important distinction that Hercus does not make.

"He will only do so when he respects the opinions of the people
providing the information, and this will take time and effort."

Frith (1978)

There is increased questioning of the role of extension workers as change agents, to thinking that allows the individual to determine and achieve his own goals more effectively. However, what an extension organisation or officer purports to say and do may not be what in fact they are actually doing in practice (Argyris and Schon 1974). Although Wilson (1967), in an Australian review, suggests that the farmer has been 'underestimated', the theory of the diffusion process (Beal and Bohlen 1956), and the Rogers and Shoemaker (1971) model of rate of adoption persists in the thinking, so treating farmers as passive and not active beings. Patterns of information flow, adoption of practices, reference to innovative and laggard farmers, together with the stated need 'to change farmer's firmly held entrenched ideas and attitudes', occur throughout the literature (Presser and Cornish, 1968; Hutton, 1977; 1981; Pathmanathan, 1978).

The background of the majority of extension workers is in the biological and physical sciences (Salmon 1981). Salmon suggests that this has led to a mechanistic view of extension as a series of inputs to achieve a given series of outputs, with a consequent emphasis on what the institutions can do to their clients. Campbell (1963) asked whether the goals of extension were 100 percent adoption of practices, or problem solving, or assisting farmers to make decisions to their own advantage. His concluding queries are still very relevant today - whether farmers are being provided with the type of information they need for making intelligent decisions; whether sufficient recognition is given to the fact that decision-making in agriculture takes place almost invariably in an
atmosphere of change and uncertainty; and whether the "practice-oriented" extension advice traditionally given is ill-adapted to the needs of the progressive, efficient farmers.

Implicit in the "getting the message across" philosophy are the beliefs that the farmer is in some way at fault or a barrier to successful communication. The farmer's goals may be seen as irrational or inappropriate to the observer, but as Cary and Clarke (1981) point out, they are almost certain to be regarded as completely rational by the farmer himself, and are not always related to economic objectives. Paolo Freire (1974), whose experience is primarily in Third World countries is very critical of the getting the message across philosophy, suggesting that agricultural extension will ensure continuation of colonialism and enslavement. He argues that the semantic interpretation of the word "extension" leads to a concept of extension characterized by the transference of techniques and knowledge - a concept Freire sees as mechanistic, negating a chance for recipients to develop "real knowledge". A concept implying that transmission cannot correspond to education, Freire argues. True education

"incarnates the permanent search of people together with others for their becoming more fully human." Freire (1971)

Extension becomes a two way flow of knowledge between two people on an equal basis in discussing a "knowable object". Knowledge is built up in the relations between man and the world.

"The effort required is not one of extension but of conscientization. If it is successfully carried out, it allows individuals to assume critically the position they have in relation to the rest of the world." Freire (1971) P. 51
The development of critical consciousness allows the person to grow and develop as a person with a degree of freedom.

Woog (1978) points out that producer groups criticized extension for their lack of relevance. The issue of relevance also was highlighted by Brewin (1980), Childs & Salmon (1978) and Salmon (1976). The information being presented was not seen as being relevant to the farmer's immediate learning needs. Woog also supports the proposition that extension is still preoccupied in trying to bring about change, without regard for the client's individuality and the impact of the change.

If Woog's charge has any basis, then it would appear that extension officers and their agencies are still trying to 'get the message across'. This, despite Rogers' (1976) very important admission on the passing of the 'Dominant Paradigm'. Rogers discusses criticisms of, and lack of scientific rigour of countless studies completed to prove top-down communication of innovation and technical ideas. In short, the theory of the diffusion of innovations has not accounted for the differing behaviour that leads to different rates of adoption.

With extension agencies still basing their programs of this theory, it is unfortunate that Rogers' (1976) acknowledgement of the severe limitations of his one way linear model has not been more widely read and changes followed. Havelock's (1969) comprehensive review illustrates this emphasis on the dissemination and utilization of information.

It may be over-simplifying extension to divide it into two responsibilities: that of providing information and secondly, and perhaps a more important role of 'the helper' (Etwell 1982).
Delivery of information is a component of the educational function. Part of the specific job requirements of an extension officer is to assist in the two-way flow of herd and farm data; from the farmer for processing, and then its return to the farmer in a usable form. A farm management system and an extension methodology that entails a 'whole farm' approach also requires an input of technical information. Therefore there is a legitimate role for an extension service in the delivery of information. The supply of information, however, does not in itself constitute education. Nor can the acquisition of information be regarded as evidence of learning, for they can not be assumed to be one and the same.

Once a farmer has access to the information he requires, to make best use of that information relies on a full degree of understanding and an ability to interpret the implications from that understanding. Facilitating a better understanding is an important helper role for an extension service.

To successfully assist in this facilitating of a better understanding the extension officer must:

- know himself/herself and his or her own limitations
- respect the farmer and his learning abilities
- know and understand the farmer/family aims and objectives
- carefully observe the context of the problem or opportunity.

In this helper role an extension officer can best assist the farmer by helping him to learn. In doing that, the facilitator must de-emphasise the 'teacher role' and improve the 'helping skills' (Carkhuff 1975).

The lack of helping skills is often compensated for by the extension officer by:
"Trying to prove the superiority of his own knowledge, rather than helping the managers to test the implications of their own interpretations." Schapper (1963) P.2

Extension officers must avoid becoming pre-occupied with trying to bring about change in the clients by imparting knowledge and skills without regard for the client's right to individuality and with disregard of the potential impact such an intrusion has on the individual and his way of interpreting his industry.

If extension adopts a non-directive counselling approach - a resource person role, allowing the client's perceptions and ideas to take precedence then Tully (1964) argues that this may be a more successful strategy. Woog (1982) believes this would greatly enhance further effectiveness.

"My belief is that extension services are more than just purveyors of information and in fact are unlikely to increase their effectiveness unless they become more aware of their client's needs."

Woog (1982) P.300


"There needs to be an adoption of the client-centred role, which is more than mere lip-service."

Bardsley (1982) P.118

Full credit needs to be given to the farmer for being active rather than passive. Bardsley argues that the extension officer needs to understand his role in the overall range of resources available to farmers, to acknowledge the self directed learning efforts of farmers and to
"understand enough of interpersonal behaviour so that he can contribute to the pool of knowledge in an effective manner."

Bardsley (1982) P.120

Extension research (Salmon 1981) appears to be evolving away from strictly mechanistic approaches to questioning philosophies of extension, and utilizing social science concepts, particularly of psychology and adult education. However, concern should be expressed that the practitioners of extension still appear to be operating with out-of-date theories even though they speak of the importance of the client and the client's needs.
ADULT EDUCATION

The learner is treated as passive rather than active in most adult education literature. It has been written from an organisation or institutional point of view. Therefore the emphasis is on organisation, delivery systems and on the lifting of professional standards. This parallels closely developments within agricultural extension (Salmon 1981). Educational technology has concerned itself in the past primarily with dependent learning situations, whereas recent emphasis tends to be upon independent or interdependent learning (Pope and Shaw 1979). Traditionally the educator's job has been seen as the direct instruction of information and rules. Education was seen as the transmission of the culturally given. Pope and Shaw have coined this as the 'cultural transmission approach', where educational change is evaluated from performance, not from changes in emotion or thoughts. The success of such an approach is:

"....the student's ability to incorporate the response he has been taught and to respond to the demand of the system."

Pope and Shaw (1979) P.3

Many adults will have this impression of education, what Pierre Angers called a 'mechanical type of education' (Bernard 1974), or "banking" concept criticized by Paulo Freire (Freire 1974): that is, the teacher puts knowledge into the student's head and the latter absorbs it. In order to succeed and to be socially acceptable, one has to go along with the system (Bernard 1974). One of the major obstacles to change (Fordham 1979) would appear to be the educators themselves. As products of a formal schooling they tend to see education in "banking" terms. Many people would also have the narrow perspective that education is still something which terminates at a given age, and anything else is thought of as information or training.
In a "Recommendation on the Development of Adult Education" at the UNESCO General Conference in Nairobi 1976, the significance of adult education within the framework of lifelong learning was stressed. The principles underlying the recommendation are that all human beings, for the sake of society and for their own sake, must be constantly learning again and anew (UNESCO 1977). At an earlier UNESCO conference on adult education (1972) the implication was clearly spelt out: that the individual perspective is a humanistic one, that the most important person in the process is the individual learner, with his/her problems, talents and hopes.

With the recognition of education as a lifelong process, adult education has become a growth industry, as illustrated by the huge increases in enrolment at agricultural courses in Australia and New Zealand (Clarke 1981; Kennedy 1982; Till 1982). In the United States of America potential target populations have been identified (Griffith and Cervero 1977) and 57 million adults who had not earned a high school diploma needed in the authors' opinions to be offered an "adult basic education program". There are numerous examples of data on attendances at courses, clientele analysis and participation studies (for example, Coolican 1974; Houle, 1961; Johnstone and Rivera 1965 and Pathmanathan, 1978 in agricultural extension). Bruner (1959) and Kidd (1959) questioned the value of the continuing participation studies even before the above papers were written, and cited the need for research which focussed not on the act of participation but on the participant. For Knowles (1957) it was the 'process' and not the 'content' that was of prime importance. Content dominated many writers' thoughts, and it was Knowles several years later who patiently restated:
We have finally really begun to absorb into our culture the ancient insight that the heart of education is learning, not teaching, and so our focus has started to shift from what the teacher does to what happens to the learner."

Knowles (1972) P.1

The scientific study of adulthood and growth during the lifecycle generally has been viewed as a development process, characterised by life cycles, periodic change and crises (Allman and Jaffe 1978, Wolfe and Kolb 1979). The most developed theory of the life cycle concept is found in Erik Erikson (1967), with Havinghurst (1977) defining developmental tasks, and Gail Sheehy (1976) in her book 'Passages' specifying the differences between tasks and phases. Sheehy identified phases as reflecting age related conditions and challenges of life. It is the development of personal styles and meanings from personal experience which has made her writings so interesting. Her book Pathfinders, Sheehy (1982) extends this concept, looking at a whole range of people who have been successful at negotiating the adult passages. The concept of growth from change or crises is no more forcefully put than by Kubler-Ross (1973, 1975) from her clinical work with terminally ill patients.

The shift in emphasis earlier indicated by Pope and Shaw (1979) away from dependent learning, and correspondingly away from institutionally provided courses, toward an individual orientation has been in part as a result of work primarily done by Tough (1968, 1971) with his concentration on self directed learning. Underwood (1980) summarises Tough's work and that of several others (Peters and Gordon 1974, McCatty 1973) and reports on her own studies of dairy advisors in Queensland (Underwood 1980). All of these writers provide evidence that a large percentage, which varies with
the different studies but may be as high as 70-80% of learning by adults, is self-planned and outside the institutional framework. Tough has found, and more than 25 studies have substantiated (Griffin 1979), that the vast majority of adults of all ages, all occupational backgrounds and educational levels, and in several countries do actively engage in learning projects. Thus Griffin (1979) suggests bringing adult educators to a critical choice "between (1) doing something beautiful and socially significant, and (2) really screwing up"

Griffin (1979) P.6

Griffin (1979) sees several diverse but related streams slowly coalescing toward genuine "making space" for adult learners. The five streams in the movement she names as the Knowles group learning, the Tough adult learning projects, individualized programmed instruction, non-traditional institutional arrangements and the heuristic life experience learning streams.

With an acceptance of the learner's active role as opposed to being receptive and passive, and recognizing that institutions which offer learning opportunities do exist and will continue to exist, the role of the professional offering the opportunities needs to be examined.

"The teacher is seen more as a guide, in a process whereby the person reconstructs the subject matter in accordance with its perceived relevance to his own life."

Pope and Shaw (1979) P.4

Knowles (1982) sees the role as "help from a facilitator and resource person" rather than transmission of knowledge and skills, with implication for professional organisations. That is to provide learning experiences to help learners learn and acquire the skills of self-directed learning, and to
help teachers acquire skills as facilitators of learning.

A key point as to the likely success or failure of the facilitator in his helping role is made by Phillida Salmon (1980).

"Both psychiatric and educational institutions seek to involve people in some kind of change. But it may be that not taking into account the complex and idiosyncratic knowledge that each person brings with him/her to any context leads to an inability to engage adequately with that person. At any rate, many attempts at teaching......do seem to achieve much less than those carrying them out had hoped for. It seems that failure is of two kinds: either the educational or therapeutic approaches made to individuals bypass their crucial personal knowledge, or else they do violence to it."

Phillida Salmon (1980) P.12

Further she states:

"Those that acknowledge the particular reality of the learner, and which endorse his/her potential competence, are characteristically facilitating"

Phillida Salmon (1980) P.15

The author believes Phillida Salmon has highlighted the crucial issue in adult education today but also believes that we may be talking in terms of the ideals rather than reality to date.

"I find very little congruence between their (adult educators) stated values of respect for learners and belief in their capacity for self direction, and their reported involvement of learners in classroom decisions. Here values are espoused but the techniques
or actions are missing"

Griffin (1979)

One question remains - what should the aims and objectives of agricultural education be today? Merriam (1979) reviews the philosophical perspectives of adult education revealing the diversity of opinion as to the field's aims and objectives, the roles of the learner, the teacher and the instructional process, and the content to be learned. Emery and Oeser (1958) distinguished between the concepts of "intelligence" and "intelligence in practical affairs"

".....'intelligence' is a determinant condition without which certain things cannot be done. Conceptual skill, on the other hand, is a mediating capacity, a concept constructed to link perspection and intelligence on the one hand to integrating farming operations on the other"

Emery and Oeser (1958) P.84

Emery and Oeser saw conceptual skill as being capable of improvement through education allowing the individual to progress. Similar research results and interpretations were achieved by Buggie (1981) 20 years later.

Ellett (1980) was critical of the lack of academic qualifications and called for more effort and higher standards of education as prerequisites for entry of people into agriculture. Rogers (1969), although not specifically talking of agriculture, sees the real challenge as one of a changing environment and society and peoples' adaption to change. So too did Toffler (1970) in "Future Shock" and Woog (1982), in his review of agricultural extension and programs in agricultural education. Learning to learn, to adapt to change are crucial educational goals.
"An outstanding feature of successful adaptation is that it leaves the way open for future growth."

Vaillant, (1977) P.27

In a rapidly changing world, the development of coping skills for successful adjustment (Woog et al 1982), an awareness of where to find information rather than retaining facts, (which have a relatively short half life today) and igniting an interest in further inquiry and objective evaluation (Gray and Harford 1982) would appear to open doors to future growth. People require assistance to understand the process of thinking and learning - it is the process rather than the content which is so vitally important.
Dictionary definitions of science invariably relate to "knowledge or systematic and formulated knowledge; the pursuit of this or principles regulating such pursuit" (Concise Oxford). The meaning of the word "inquiry" in the same dictionary is given as "make search" (into matter); seek information (of or from person; about, after, thing etc.). Yet when we look at "scientific" we get a meaning straight from the dominant paradigm i.e. scientific or rationalistic paradigm of disciplined inquiry as used in the hard or physical sciences.

"Scientific (of investigation) - according to rules laid down in exact science for performing observations and testing soundness of conclusions, systematic, accurate; of, used or engaged in, (esp natural) science."


Paradigms are characterised by sets of assumptions about the phenomena into which they are designed to inquire. The rationalistic paradigm is based on a reality which is singular, tangible and fragmentable. The inquirer has an independent relationship with the subject, looking for "real" causes that are context-free and value free. How suitable is the rationalistic paradigm (or Cartesian framework - Capra 1982) for investigations into human experience?

Kuhn (1962) suggests that we are experiencing a paradigmatic revolution.

"That revolution centres about the growing concern that the paradigm which we have typically utilized for scientific (hard and
life sciences) inquiry has ill served us when applied to the social and behavioural sciences, and, further, that attention to vigour within this paradigm has meant increasingly that results of social studies are less and less applicable and less and less "life-like" as time has passed."


Guba and Lincoln (1982) in describing a paradigm which takes account of the nature of social experience, have isolated five major differences between the rationalistic and what they call the 'naturalistic' paradigms.

TABLE 6:
AXIOMATIC DIFFERENCES BETWEEN THE RATIONALISTIC AND NATURALISTIC PARADIGMS

<table>
<thead>
<tr>
<th>Paradigm</th>
<th>Rationalistic</th>
<th>Naturalistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reality</td>
<td>Single, tangible, convergent, Multiple, intangible, fragmentable</td>
<td>Multiple, intangible, divergent, holistic</td>
</tr>
<tr>
<td>Inquirer/respondent</td>
<td>Independent</td>
<td>Interrelated</td>
</tr>
<tr>
<td>relationship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature of truth</td>
<td>Context-free generalizations-nomothetic statements-focus on similarities</td>
<td>Context-bound working hypotheses-idiographic statements-focus on differences</td>
</tr>
<tr>
<td>statements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attribution/explanation</td>
<td>&quot;Real&quot; causes; temporally precedent or simultaneous; manipulable; probabilistic</td>
<td>Attributional shapers; interactive (feed-forward and feedback); non-manipulable, plausible</td>
</tr>
<tr>
<td>of action</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relation of values to</td>
<td>Value-free</td>
<td>Value-bound</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
These differences, as well as the fact that the inquiry is conducted in a natural setting, that it uses a case study format and relies on qualitative (subjective) rather than quantitative (objective) information, all imply major methodological changes to social/behavioural studies. Guba and Lincoln further argue that there can be no compromise on axiomatic assumptions, although there may be compromise on various postures which we typically ascribed to the two paradigms.

Although using different terminology, Capra (1982) essentially argues that we have reached a turning point where a shift from mechanistic (Cartesian framework) approaches to holistic (systems framework) is required in social inquiry. Goffman (1971) suggests that traditional research design has not increased understanding within the social sciences. There is increasing debate about models of man and dissatisfaction arising from traditional methods, Andreski (1972) being particularly critical of the status quo, and Harre' and Secord (1972) who offer alternatives both in view and method. Clearly an examination of models of man and a decision as to the paradigm of approach are necessary before the development of an acceptable and usable method is appropriate.
MODELS OF MAN

To appreciate developments in agricultural extension, adult education and social psychology, the reader needs an understanding of the theoretical standpoint taken by the writer or implicit in his argument, with regard to man and his world. Is man purely a product of his environment or does man act with some degree of intention? Behaviour (what is outward, and observable to others) and experience (the inward, unobservable thoughts, emotions, perceptions, i.e. the private world of experience) are two separate aspects of psychology. Behaviour represents the objective, while experience represents the subjective aspect of people. Behaviour fits the natural science model, whereas experience does not. Behaviouristic psychology looks for cause-effect relationships, humanistic studies firstly identify the phenomena. Two writers have summarised the development of this dichotomy and its relationship to the formation of model of man bases for which research can be given a theoretical underpinning (Fransella, 1975; Shotter, 1975).

Fransella (1975) describes the historic development of the two principle schools of thought, the mechanistic and humanistic views. Philosophers Locke and Kant epitomise this division, Locke seeing man in mechanical terms, the mind being a tabula rasa or blank slate, with events imprinted upon it via the senses, whereas Kant viewed man as do the phenomenologists, i.e. man can not directly perceive absolute reality but he has his own view of it. The action model believes man acts or behaves because he is alive. Lebenswelt or life-world is the world as lived by the person, who acts in an intentional manner on his world (Valle and King 1978). Kelly’s (1955) view of man (to be discussed later) is very much in
the Kantian tradition.

Shotter (1975) views man from the three standpoints - mechanical, organic and personal. He is critical of the mainstream mechanical thinking and opts for the alternative view of man, supporting study of experience or action rather than behaviour.

"We may view him as primarily a doer, immersed in the world as an agent, who has the power to act on the world and to change it to accord more with his own needs and interests."

Shotter (1975) P.31

This is not to suggest that a person has total freedom of choice, but each person is said to have situational freedom (Valle and King 1978).

Behaviourism grew in part as a reaction against introspection, which was very difficult to validate. Skinner (1971) has emerged as the giant of contemporary behaviouristic theory, attracting both followers and detractors. Man is controlled by the environment, Skinner argues, but man has created that environment. The question of freedom is seen by critics as a paradox; the Skinnerian notion that man is free since he can control his environment is contradicted by Skinner's assertion that man is controlled by that environment. Skinner was concerned with observable events and their relationships. The concept of reinforcement is central to his work. Lefrancois (1974) maintains however, that it is not a completely objective concept.

"Humans have not yet determined whether they are free or slaves to the reinforcement contingencies of their environments. Skinner's theory is consequently somewhat discomforting for many humans."

Lefrancois (1974) P.211
George Kelly constructed a theory of personality from a theory of cognition, with a fundamental postulate that

"A person's processes are psychologically channelized by the ways in which he anticipates events."

Kelly (1955) P.46

In an attempt to account for man's progress, Kelly's view of mankind is one of "man the scientist", i.e. a theory of man's understanding of his own understanding. The theory began with the combination of two simple notions:

"....first, that man might be better understood if he were viewed in the perspective of the centuries rather than in the flicker of passing moments, and second, that each man contemplates in his own personal way the stream of events upon which he finds himself so swiftly borne."

Kelly (1955) p.3

His emphasis is on anticipation rather than reaction, and "constructive alternativism"; man may create alternative constructions - the universe is not inexorable unless he chooses to construe it that way. Kant believed humans are born with this minute organisational ability. People are continually re-inventing themselves and their alternative futures. They are prisoners only of their lack of effective imagination.

"Man looks at his world through transparent patterns or templates which he creates and then attempts to fit over the realities, of which the world is composed."

Kelly (1955) P.9

He saw individuals as operating within a framework composed of an hierarchial system of bipolar constructs and he devised the repertory grid.
as one
FIGURE 2 "MAN THE SCIENTIST"

- Constructs
- Assessment → Prediction
- Behavior (test)
- Result (feedback) Validation

ENVIRONMENT
method of eliciting constructs from individuals in such a way that the relationships between them could be determined (Yorke 1978). Modelling of personal experiences into viable meanings enables the person to anticipate events. Personal theories are developed from experience and these theories are the basis of all action and are tested, improved, revised and validated in the light of ongoing perception. The process of validation enables successful anticipation, adequate modelling enables man to cope and to live creatively. Personal construct theory (P.C.T.) was stated in terms of a fundamental postulate and elaborated by means of eleven corollaries (Appendix A). Kelly's theory contains two corollaries which may be construed as primarily relevant to social interaction.

The Commonality Corollary

"To the extent that one person employs a construction of experience which is similar to that employed by another, his processes are psychologically similar to those of the other person."

Kelly (1955) P.90

The Sociality Corollary

"To the extent that one person construes the construction process of another, he may play a role in a social process involving the other person."

Kelly (1955) P.95

Bannister and Fransella (1971) give a good overlay for research and describe the use of the Grid. In agricultural extension studies Brewin (1978), Childs (1977), Hicks (1976), Poussard (1980), Salmon (1976) and Woog (1978) used Kellian theory and a modification of Ingrid-72 in a scattergram of constructs and elements, to enable agriculturally oriented people to reflect

Personal construct theory has given the present author a base through which he has gained a better understanding of himself and those around him. It gives man a positive outlook and presents a theory of change and of coping with change, which feels comfortable for use in this study.

"In its full extent the theory of personal constructs can be claimed to cover all psychological phenomena whatever, cognitive, conative and affective. It also refers back to itself - not like behaviourism for instance, which has difficulty in accounting for the behaviour of the behaviourist."

Slater (1969) P.1288
WHAT IS LEARNING?

In reviewing the literature, to answer the question 'what is learning', the author felt a little like Hans Christian Anderson's characters Hansel and Gretel, who followed a trail of crumbs deeper and deeper into the forest, only to turn and find birds eating their trail.

Countless papers have been written on the subject of learning; unfortunately most are descriptive, lacking theory and essentially refer to the methodology of education rather than learning per se. There has been a sequence of learning theories from Pavlov's classical conditioning, Watson/Thorndike's reinforcement, Skinner's box, Gagne's conditions for and classification of learning, Bruner's art of discovery and Ausubel's meaningful learning to Hull's concept formation and Osler's continuity theory. All are well reviewed and summarised in Hilgard and Bower (1966) and the very readable Lefrancois' (1975) 'Psychology for Teaching'. However, most of these remain in what Capra (1982) calls the Cartesian framework, a mechanistic view of the world where mind and matter are separate. In the new paradigm of a holistic and ecological view, writers such as Ashton - Warner's (1963) personalised account, Erikson (1967) and 'Piaget's Theory' - Wadsworth (1979) also 'Piaget' - Boden (1979) and Rogers (1977) focus much more on the learner and the learning process.

Piaget's concepts of assimilation, accommodation, equilibrium (similar to Festinger's (1957) theory of cognitive dissonance) and schemata, his belief of experience building on previous experience and the requirement of the child to act upon the environment for cognitive development to proceed are important. Throughout Piaget's work there is a belief that people are naturally inclined towards scientific styles of thought. The investigations
into formally operational thought (Inhelder and Piaget 1958) were shown in style to parallel scientific method.

Piaget tends to emphasise the solitary child developing toward 'operational thinking' he does not ignore the role of social influence (Emler and Heather 1980). Although Emler and Heather argue that any system of understanding develops within a particular social and historical context, their principal objection to Piaget's theory is that it takes little notice of possible cultural factors. Rogers (1969), in his non-directive counselling, emphasised the person-centred approach to learning and self development towards actualization. However, he too saw important social factors involved in the process. Development was seen as changing perceptions of the world, as a result of interactions with the world and from 'values' about self, obtained from the action of other people. Rogers believed in a 'natural' and continuing process of personal growth. From the theories of Kelly, Rogers and Tough, Salmon (1981) places the focus on the learner.

"adult learning becomes a process of understanding initiated by the learner."

Salmon (1981) P.32

Although George Kelly's personal construct theory was not specifically a theory of learning, he viewed learning as a positive construction. In considering learning (Thomas and Harri-Augstein 1976) thought learning might be defined in Kellian terms as:

"The construction and exchange of personally relevant and viable meanings"

Thomas and Harri-Augstein (1976) P.2
Construing is the process of 'placing an interpretation'. A person erects a structure within a framework of which the substance takes place or assumes meaning. The effects of changes of personal meaning on core constructs, the validation of meanings leading to constriction or dilation and hence either positive or negative (pathological) aspects of experience, apply to constructs in transition, now highlighting the 'emotion of learning'. There is a degree of risk associated with change or crisis (used in Kellian terms). For those events where the person has an adequate construct model there will be confirmation, but where the model is inadequate the person will in Kellian terms, experience anxiety, guilt, threat or fear.

Elizabeth Kubler Ross (1973, 1975) identified stages through which a person passes as he/she experiences a crisis or life event change. The growth through change occurs fully if a person passes through all stages, although the duration of and full completion of each stage will be different for every person and crisis. The stages of growth identified by Kubler Ross in order are: denial (shock), anger (emotion), bargaining, depression, acceptance. The risks associated with change (or learning) would appear to be greatest during the period of uncertainty and likely depression. Depression could be of a very short duration or extend for some time. This would mean a period of nil growth, negative attitudes and non-productive human energies, probably accumulating in social withdrawal. The learning/person growth opportunities would be extremely limited until the "acceptance" or "ah ha!" point is reached. People gain from personal crisis and change, although at stages during this process most people would have difficulty in seeing the positive growth aspects of their experience. Adult's ability to change and to accept change, focuses attention on coping skills, particularly successful coping skills. Learning is seen as a
process of change and successful coping skills.

Two separate models, one by Thomas and Harri-Augstein (1976) and the other an interpretation of the work of Kubler-Ross (1973), give insight into the nature of change. There are different levels of change from relatively minor changes to radical life re-organisation (or even preparation for death). Both can be accommodated within the models of change shown.
Mirror Disrupts

Re-building and review

Max, need for support

THE DISINTEGRATION OF PERFORMANCE BEFORE IMPROVEMENT
(Thomas & Henri - Angstein 1976)
FIGURE 4. MODEL OF THE NATURE OF CHANGE
(Adaption from Kubler Ross 1973)
Several other writers comment on the risks associated with learning and encountering change (Beck 1979, Sheehy 1976, Thomas and Harri-Augstein 1976, Cary and Weston 1978) and Kelly himself. Beck (1979), however, believes that Kelly's original explanation of emotions is in need of some elaboration. Kelly's definitions relate to constructs that are changing.

"...he has concentrated almost exclusively on the pathological aspects of experience, with very little emphasis on more positive aspects"

Beck (1979) P.16

Participants do experience excitement and enjoyment from learning, yet there is little reference to this in the personal construct theory.
FIGURE 5   The Ways in which a person's Construct System may be Modified by Participation in an Experiential Learning Programme (Beck, 1979)
Both models show the need for support and both have a positive gain situation as a result of change or crisis, i.e., it's a learning process and gaining of a better understanding about oneself. Phillida Salmon (1980) chastises the cold authoritarian approach, seeing learning as a social-communion and agency (or action) of "coming to know".

Beck's (1979) experiential learning model is similar in concept to one developed by Kolb (1974; 1976). Kolb labelled his model experiential for two reasons; firstly, an historical reason in its close ties to the social psychology of Kurt Lewin in the 1940's, and secondly, to emphasize the importance of experience in the learning process.
FIGURE 6
SELF DIRECTED LEARNING STRATEGY

REFLECTION

EVALUATION

INQUIRY

ACTION

choose a model or goal
execute the solution

Concrete Experience

compare it with reality

diverege differences (problems)

ACCOMMODATION
divergence

Active Experimentation

select a solution

CONVERGENCE

Abstract Conceptualization

select a problem

ASSIMILATION

Reflection Observation

evaluate consequences of solutions

evaluate alternative solutions

EXPERIENTIAL LEARNING MODEL
developed by Kolb (1978)
Kolb's learning cycle (see Figure 6) is a description of how experience is translated into concepts, which in turn are used by the learner as guides in the choice of new experience. Kolb also believed that learners develop their own learning styles as a result of the effects of heredity, past life experience and the demands of the present environment. The purpose of such an approach was to assist people to understand their own learning styles and the likely consequences that this might lead to ie. being more effective learners.

Argyris & Schon (1974), and Argyris (1979; 1976b; 1976) believed that there are in fact two learning cycles, what they called single loop and double loop learning. Single loop learning has some limitations in that it becomes self sealing and eventually leads to non-learning. Single loop learning is where one learns to adopt new action strategies to achieve one's governing variables. Learning of this type does not question fundamental design, goals and activities. Double loop learning is where one learns to change one's governing variables (Kellian's core constructs) to question fundamental values and beliefs.
MODEL 1 — Single loop learning

DISCOVERY (of the problem)

GENERALIZING (what one has learnt to other settings)

INVENTING (conceptual map)

PRODUCING (performing in terms of actual behavior)

MODEL 2 — Double loop learning (learning to learn)

DISCOVERY

GENERALIZING

INVENTING

PRODUCING

FIGURE 7. Single and Double Loop Learning
Argyris and Schon (1974) believed one could differentiate between espoused theories of action and theories in use. Espoused theories are those that people report as a basis for actions, whereas theories in use are the theories of action inferred from actual behaviour. Learning, Argyris (1976) suggests, should help people become aware

- of their espoused theories
- of their theories in use
- of any inconsistencies within each
- of any discrepancies between the two

Learning means helping people to advance toward self sufficiency, that is learning to learn.

Science should aim to simplify and although it may be desirable to model the separate functions of perception, thinking, remembering, acting, language and learning, these functions are so interdependant that investigation should be on a whole integrated systems basis. So argues Uhr (1975) who warns that choices, problems and solutions constantly operate in a fuzzy domain. A system should have a relevant description, but even 'description' is an extremely fuzzy concept Bawden (1983) and Capra (1982) are two further writers who believe most investigations will have to shift to a systems approach rather than to fragment the components of the whole to understand the process.

In looking for an holistic systems approach, the 'conversational technique, developed by Pask (1976) Thomas & Harri-Augstein (1976,78,79) and Thomas (1979) presented the author with a technique for better understanding of and a fundamental unit for investigating complex human learning. The conversation technique provides a framework in which the learning models of
Thomas and Harri-Augstein, Kubler-Ross, Beck, Kolb and Argyris can be incorporated.
A FUNDAMENTAL UNIT FOR INVESTIGATION - CONVERSATIONAL TECHNIQUES

"In simplicity we had our conversation". St. Paul. Pask (1976) developed the conversational technique for use under controlled conditions, but it had methodological precedents in the work of Piaget - that is probing observing and exteriorizing normally hidden cognitive events.

"It permits the investigation of other important but elusive aspects of human learning which have educational implications - notably the nature and control of understanding, the nature and use of analogical concepts, learning style, innovation and learning to learn."

Pask (1976) P.13

The fundamental unit for investigations is communication through a conversation between two participants in the learning process. In accepting Freire's equality of participation, the conversation involves two learners exchanging tutor/learner roles, both learning and gaining by the experience and allowing the experimenter (learner) to exteriorize the respondent's (learner) understanding via verbal responses or some other medium (for example, Repertory grid). The method relies upon a participant experimenter, who shares in the mental activity of the participant respondent but who still obeys certain pre-specified, though conditional rules - of special interest in the eliciting of explanatory responses, the notion of agreement between participants and the representation of thoughts and discoveries. The problem situation (or knowledgeable object (Freire)) embodied in a physical artefact or whatever it may be, it is jointly perceived by both participants. The experimenter poses problems - questions involving the 'how' and 'why', the answers if forthcoming are explanations or constructive responses. All explanations can be interpreted in relation
to the problem situation, thus the participants are able to reach agreement, a common basis for understanding and that understanding is exteriorized. By asking how, why, and what if some feature of the problem situation changed, the experimenter must have a comprehensive knowledge of the learning domain, to provide appropriate assistance.

"This procedure provides an effective learning environment for the student and also data for the research worker which allows him to examine learning strategies which are normally only accessible through an introspection"

Pask (1976) P.12

Conversational techniques represent a systems approach to learning, where learning develops through agreement, which leads to understanding by the learner. Learning is based on these mutually generated descriptions and their understanding based on a derivation and the context of this derivation. In examining a learning project and the different learning activities that make up that project, pathways can be drawn showing learning strategies which show how the learner attempted to reach and understand his learning goals.

Thomas and Harri-Augstein (1976), in investigating the process of learning to learn, utilize the learning conversation and the Repertory Grid. Learning is viewed as the act by which personally viable meanings are constructed and exchanged. The conversation is described as being far from 'just inspired chit-chat' but rather as

"a highly organized but sensitive process of control, encouragement, guidance and interchange."

Thomas and Harri-Augstein (1976) P.4
Early in the conversation there is an apprentice and a master but for communication to occur there needs to be a small area in which they meet as equals.
Figure 8. The Personal Interaction Model

Constructs

Person A  ↔  Person B

Communication

Conversation
Gradually the area of equality expands as the apprentice develops understanding. In achieving this 'self organized change' the conversation continues within his head and he becomes his own tutor.

"The part of the conversation which goes on in his head remains available to awareness and the external conversation becomes concerned with more complex issues and learning organized over longer periods of time."

Thomas and Harri-Augstein (1976) P.27

A technique called the focused grid preserves the elicited data and reorganizes it to classify the experiential image (Thomas 1979). This releases the need for the experimenter to look for patterns, in fact the role of the professional guide is changed in that he is 'free to attend to the process whereby the constructions of experience are themselves construed'. However

"There is nothing sacrosanct about the tabular form of the grids. In fact Kelly himself saw construct systems as fragmented, partially permeable hierarchical structures. There is almost infinite scope for the development of methods for eliciting and processing and displaying an individual's constructions of experience and for using them to generate powerful and relevant learning conversations in education."

Thomas (1979) P.53
THE MODEL FOR RESEARCH - IMPLICATIONS FROM LITERATURE REVIEW

The historical developments of both agricultural extension and Adult education appear to have been very similar, if not parallel in nature. In understanding and testing the validity of any social research, one has to have a grasp of the standpoint or view of man and his world, taken by the experimenter to give his work a theoretical underpinning.

The author, although having himself been 'educated' within a 'learn the fragmented components of the whole to understand the process' school of thought, believes, as does Capra (1982), that a holistic systems approach would be more productive when examining the learning or 'coming to know' process. The humanistic model of man gives credit for and respects man for his active and intentional participation in an attempt to anticipate the future outcome of his actions. By utilizing a conversational technique the research model allows for a participant observer role for the experimenter and provides an opportunity for respondents to express their own construct systems. Although Pask (1976) was using his techniques in a highly controlled laboratory situation, the 'clinical interview' and concept of a three way conversation between experimenter, respondent and the problem situation, can be used to develop a methodology suitable for investigating the learning efforts of dairy farmers.

In treating learning as the construction and exchange of viable meanings, the nature of the social environment of the learner and the personal construction of that environment from the learners perspective, needs to be seen within the context of the learning process. To accept a single learning model appears inadequate, not to satisfy a systems approach and at best to contribute some understanding of only a component of the
learning process. An amalgam of the models presented by Thomas and Harri-Augstein, Kubler-Ross, Beck, Kolb and Argyris provides a platform to observe and understand the dynamic process of learning and social interaction.
AIMS OF THE RESEARCH PROJECT

1. To investigate the self directed learning activities of dairy farmers.

2. To develop a 'conversational technique' utilizing counselling skills.

3. To investigate the learning process and how the learner's perception of the people he uses, affects his use of those people as resource persons ie. learner's perceptions of the learner's social environment.

4. To utilize the Repertory Grid, to test the effectiveness of the developed conversational technique, to elicit those perceptions.

5. To look at possible differences between extension agencies within Australia and New Zealand, which are allowable within the developmental structure of the project.

6. To examine the personal risks associated with change, by attempting to elicit learner's 'core constructs' or 'governing variables' and the effect of change on these core constructs and the learner's coping strategies.

7. To discuss the implications of the project for extension.
SELF DIRECTED LEARNING - A procedure for investigation.

The most fruitful source of information in examining the learning processes of the adult appears to be the learner himself.

In Canada, initial work by Tough (1967) and subsequent studies by Armstrong (1971), Coolican (1974), Denys (1973), Fair (1973), Field (1977), Hiemstra (1975), McCatty (1973) and Morris (1977), as well as additional papers by Tough (1968, 1969, 1971, 1978), identifies the concept of the self directed learner. The central component of those studies is the "learning project" described by Tough as:

"...a highly deliberate effort to gain and retain certain definite knowledge and skill, or to change in some other way."

Tough (1978) P.250

Learning episodes which make up a learning project, must add up to at least seven hours of effort to be included in the study. In this way, major learning efforts have been identified and examined.

In Australia, Underwood (1980) reviewed and tested the Tough methodology with a selected group of extension officers from the Dairy Division, Queensland Department of Primary Industries. Her findings largely substantiated the work of Tough et. al. Underwood further examined the learning activities and resources used by the extension officers. This was done by using a simple card sort and recording the patterns laid out by the interviewee. The Underwood questionnaire and card sort was based on Field's (1977) schedule.
Underwood's schedule and methodology formed the starting point for this study. The initial aim was to collect further learning project data, using a dairy farmer population. As a group, farmers had not previously been studied in terms of "learning projects". After collecting information from five farmers, however, the researcher's interest moved to factors influencing the learner while he was active in a learning project. A more detailed methodology then was developed to examine the factors affecting the adult learner, as he learned through his experiences and decision making processes (i.e., farmers making farm management decisions).
DEVELOPMENT OF RESEARCH DESIGN

A pre-test interview using Underwood's (1980) interview schedule (based on Tough's methodology) highlighted some problems and encouraged the following modifications.

### INTERVIEW SCHEDULE

<table>
<thead>
<tr>
<th>Content of Schedule</th>
<th>Exclusions from Underwood's Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A list of learning projects</td>
<td>1. Time of beginning project.</td>
</tr>
<tr>
<td>2. Content of learning project.</td>
<td>2. New or continuing project.</td>
</tr>
<tr>
<td>3. Kind of educational accomplishment.</td>
<td>3. Length of time of typical learning session.</td>
</tr>
<tr>
<td>4. Length of time spent learning.</td>
<td>4. Learning project resources.</td>
</tr>
<tr>
<td>5. Day to day planner.</td>
<td>5. Learning activities.</td>
</tr>
<tr>
<td>7. Credit.</td>
<td>7. Application</td>
</tr>
</tbody>
</table>

A list of learning projects, contents of learning project, reasons for beginning learning project, credit and problems - in these questions the wording was unchanged. However, in "kind of educational accomplishment" the word "information" replaced "knowledge" - in the pre-test the word 'knowledge' created confusion; it was a concept the farmer didn't fully understand.
A total time was asked for, to estimate the 'time spent learning', rather than a detailed breakdown of planning, travelling and learning times. The author was sceptical of the degree of accuracy stated for learning times in earlier studies, e.g. Hiemstra (1975). This scepticism was to be confirmed, as farmers could make only 'guesstimates' of the time spent learning.

The "day to day planner" question was simplified by removing the "mixed" options, e.g. mixed self/group and replaced by a coding system of:

- Mostly reason,
- Also reason, or
- Not a reason,

which allowed for combinations.
LEARNING ACTIVITIES

Underwood extended the original "learning activities" list from Fields (1977) in compiling her 'Activity' cards for the learning strategy card sort. In this study, several minor changes in wording were made in an attempt to remove ambiguity, e.g. talking and asking was reduced to asking only. Problem solving was changed to analysing.

TABLE 7:

LEARNING ACTIVITY CARDS USED IN STAGE ONE

LISTENING
DISCUSSION
WATCHING
READING
PRACTISING
ANALYSING
THINKING
DOING
ASKING
WRITING
RECOGNISING PROBLEM (added by one farmer only)
In Stage One, "human learning resources" remained unchanged from those used by Underwood. However, in the non-human resource cards, films and recordings were dropped and replaced by "a working example", thought to be more applicable to a farming audience.

**TABLE 8:**

<table>
<thead>
<tr>
<th>Non-Human Learning Resource Cards Used in Stage One</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books</td>
</tr>
<tr>
<td>Pamphlets</td>
</tr>
<tr>
<td>Magazines</td>
</tr>
<tr>
<td>Newspapers</td>
</tr>
<tr>
<td>Radio</td>
</tr>
<tr>
<td>Television</td>
</tr>
<tr>
<td>Displays/Exhibits</td>
</tr>
<tr>
<td>Correspondence Material</td>
</tr>
<tr>
<td>A Working Example</td>
</tr>
</tbody>
</table>
The card sort is an important component of the "conversational" techniques used in this project. The concept of a conversation as an investigating research tool was developed by Pask (1976). The methodology is an adaptation of the "clinical" interview or Piagetian interview. The helping or counselling skills as described by Carkhuff (1977) are an essential component of such a "clinical" interview.

The problem situation or context for the exercise is contained within the card sort of the learning experience. The card sort becomes a physical artifact, which may be jointly perceived and observed by the participants, i.e. researcher and respondent. So in effect there is a three-way conversation between the researcher, the respondent and the card sort, which enables the eliciting of explanatory responses and the notion of agreement between the participants. The card sort was designed to involve both the participants and to assist in bringing to the surface the thoughts and discoveries by the respondent. The basis for agreement between participants, once discussed and observed, can be recorded.
The cards were randomly placed before the respondent. Instructions were given to select and sequence the cards in such a way as to illustrate the learner's activities. This sequence of learning activities then formed what will be called the learner's "learning strategy". While sequencing the cards the respondent was encouraged to verbalize his thoughts and reasons for what he was doing.

The "learning resource" cards were matched to the appropriate learning activity within the learning strategy. The respondents were given the opportunity to change the wording or add new cards if they felt that the existing cards were insufficient. Most farmers worked within the given activity and resource cards and few new cards were added.

The project fieldwork has been divided into five stages which illustrate the development of the methodology used in the New Zealand section of the study. (ie. Stage 5)
STAGE THREE - WARRNAMBOOL AND MAFFRA VIC.

STAGE FOUR - MANAWATU N.Z.

STAGE ONE - KYABRAM VIC.

STAGE TWO - MELBOURNE

STAGE FIVE - MANAWATU N.Z.

FIGURE 9. RESEARCH DEVELOPMENT STAGES - LOCATION MAP
<table>
<thead>
<tr>
<th>STAGE</th>
<th>NUMBER OF INTERVIEWS</th>
<th>DESCRIPTION</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>Pre-test and learning project interviews</td>
<td>Victoria (Australia)</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>Review of Stage 1, development of &quot;clinical&quot; method.</td>
<td>Melbourne</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>Testing &quot;clinical&quot; method with dairy farmers.</td>
<td>Victoria</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>Modification of method during dairy farmer interviews.</td>
<td>Waikato (New Zealand)</td>
</tr>
<tr>
<td>5</td>
<td>14</td>
<td>Final run: dairy farmers</td>
<td>Manawatu (New Zealand)</td>
</tr>
</tbody>
</table>

Interviews were completed during this study. Thirty nine of a total forty planned interviews. Twenty were carried out in Victoria (Australia) and nineteen in New Zealand. One interview was lost due to the planned respondent's illness on the date arranged. (Stage 5)
STAGE ONE: PROCEDURE

LOCATION - MELBOURNE AND KYABRAM - VICTORIA

One pre-test interview was completed in Melbourne with a visiting New Zealand dairy farmer. The Underwood schedule was used, and the subsequent discussions brought about the changes listed in "Development of Research Design". The farmer experienced some difficulty with the meanings of certain key words used in the schedule, e.g. intimate, learning, problem solving and knowledge. The concept of a "learning project" presented no problems and a list of projects was easily compiled. The interview time (three hours), the repetitive nature of the questions and the languorous manner of the schedule, stimulated shortening and simplification of the questionnaire. At the completion of the pre-test interview, the farmer questioned certain concepts used by the researcher. For instance:

"When does learning start and end in any one project?"

"Do farmers think of their work and management as learning?"

The distinction between the learning of a skill and the doing of a learned skill is difficult to make and depends primarily on an individual's concept of learning. This does question whether in fact everyone could have a unified concept of a learning project and the time boundaries of that project.

At Kyabram, the local Nestle's field officer randomly chose four farmers selected from the Nestle's Dairy Company supply list at Tongala. The four farmers were telephoned and appointments made; one in the morning, and one in the afternoon (between milkings) for two consecutive days.
INTERVIEW PROCEDURE consisted of:

(a) The farmer completing a general data sheet.

(b) An introductory discussion on the concept of a "learning project as defined by Tough!"

(c) Compilation of learning projects, active over the past twelve months. Respondents were given a probe sheet.

(d) Completion of the modified "Tough Questionnaire".

(e) Card sort of selected learning projects - using the "learning activity" cards.

(f) Card sort and matching of "learning resource" cards to "learning activity" cards, as laid out in (e).

(g) Discussion focused on the card sort exercise.

(h) The researcher asked for feedback on the interview, then thanked the respondent for his cooperation.

Sections (e), (f) and (g) - the card sort and discussion - were tape-recorded, in conjunction with a written record.
The card sorts of Stage One were tape-recorded by the researcher for three reasons:

1. To ensure a full and complete record of the respondents' answers and verbalized thoughts.

2. To test farmers' reaction to the presence of a tape-recorder.

3. To enable a critical review of the interviewing technique and to detect bias in questions.

The researcher was accompanied to Kyabram by a fellow member of the Agricultural Extension Research Unit, University of Melbourne, whose role was to monitor the interview technique and questioning bias.
RESULTS - STAGE ONE (MELBOURNE - KYABRAM)

The responses given by the pre-test respondent and the four Kyabram farmers are given in the following tables.

**TABLE 10:**

<table>
<thead>
<tr>
<th>DEMOGRAPHIC DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RESPONDENT</strong></td>
</tr>
<tr>
<td><strong>A</strong></td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Marital Status</td>
</tr>
<tr>
<td>Family Status (No. children)</td>
</tr>
<tr>
<td>Formal Education</td>
</tr>
<tr>
<td>Ownership Status</td>
</tr>
<tr>
<td>Member Farm Discussion Group</td>
</tr>
<tr>
<td>Employ Labour</td>
</tr>
<tr>
<td>Number of Clubs/Associations</td>
</tr>
<tr>
<td>Number of Recreational Activities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FARM PRODUCTION STATISTICS 1978-79</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RESPONDENT</strong></td>
</tr>
<tr>
<td><strong>A</strong></td>
</tr>
<tr>
<td>Size of Farm (Hectares)</td>
</tr>
<tr>
<td>Total Milkfat (Kg/Mfat)</td>
</tr>
<tr>
<td>Milkfat/Hectare (Kg/Mfat)</td>
</tr>
<tr>
<td>Number of Cows 1st Jan. 1979</td>
</tr>
<tr>
<td>Milkfat Prod./Cow (Kg/Mfat)</td>
</tr>
</tbody>
</table>

* Pre-Test New Zealand Respondent

# Milking Area Only
The older farmers tended to have larger families, less formal education, fewer off-farm activities, smaller farms and milk fewer cows than the younger farmers.

TABLE 11:

LEARNING PROJECT DATA (12 Months)

<table>
<thead>
<tr>
<th>RESPONDENT</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Learning Projects</td>
<td>18</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>-</td>
</tr>
<tr>
<td>Total No. Hours Spent Learning</td>
<td>1,980</td>
<td>760</td>
<td>1,402</td>
<td>416</td>
<td>-</td>
</tr>
<tr>
<td>Average No. Hours Per Project</td>
<td>110</td>
<td>84</td>
<td>156</td>
<td>47</td>
<td>-</td>
</tr>
<tr>
<td>No. of Work Related Projects</td>
<td>11</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>No. Hours Work Related Projects</td>
<td>1,324</td>
<td>360</td>
<td>1,090</td>
<td>308</td>
<td>-</td>
</tr>
<tr>
<td>Av. Hours Per Work Related Project</td>
<td>120</td>
<td>45</td>
<td>136</td>
<td>38</td>
<td>-</td>
</tr>
<tr>
<td>Largest Work Related Project (Hours)</td>
<td>900</td>
<td>50</td>
<td>600</td>
<td>105</td>
<td>-</td>
</tr>
<tr>
<td>Smallest Work Related Project (Hours)</td>
<td>11</td>
<td>20</td>
<td>28</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>Percentage Work Related Projects</td>
<td>61%</td>
<td>89%</td>
<td>89%</td>
<td>89%</td>
<td>-</td>
</tr>
</tbody>
</table>

Respondent E maintained that he had not been active in learning projects over the previous twelve months. He explained:

"Early in life, the farm work was all self-taught but now it's routine - I have been doing it for years, it's not learning."
TABLE 12: SUMMARY OF LEARNING PROJECT DATA (N=4)

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean no. of learning projects/dairy farmer</td>
<td>9.4</td>
</tr>
<tr>
<td>Range of learning projects/dairy farmer</td>
<td>9 - 18</td>
</tr>
<tr>
<td>Mean no. total hours learning</td>
<td>911.6</td>
</tr>
<tr>
<td>Range of total hours learning/dairy farmer</td>
<td>416 - 1980</td>
</tr>
<tr>
<td>Total percentage work related projects</td>
<td>74%</td>
</tr>
<tr>
<td>Mean no. hours per work related project</td>
<td>88.0</td>
</tr>
<tr>
<td>Mean no. hours on work related projects</td>
<td>845.5</td>
</tr>
</tbody>
</table>

These farmers were active in approximately nine projects, three quarters of which were work related projects. If one assumes that a working week contains 40 hours, then these farmers were spending 20 working weeks/year, or 40% of their working time actively involved in learning.

TABLE 13: KIND OF EDUCATIONAL ACCOMPLISHMENT (N=4)

<table>
<thead>
<tr>
<th>Accomplishment</th>
<th>Number of Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skill</td>
<td>8</td>
</tr>
<tr>
<td>Information</td>
<td>10</td>
</tr>
<tr>
<td>Understanding</td>
<td>4</td>
</tr>
<tr>
<td>Skill/Information</td>
<td>3</td>
</tr>
<tr>
<td>Skill/Understanding</td>
<td>2</td>
</tr>
<tr>
<td>Information/Understanding</td>
<td>8</td>
</tr>
<tr>
<td>Skill/Information/Understanding</td>
<td>10</td>
</tr>
</tbody>
</table>
Approximately 60% of the projects were of 60 hours or less. There were two very large projects.

The planning of the learner's project is mainly done by the learner himself, as confirmed by the next set of results (Table 15). According to these figures 66% of projects were "self" planned (cf. 70% Tough (1971), 66% Underwood (1980).)
### TABLE 15:

**DAY TO DAY PLANNER (N=4)**

<table>
<thead>
<tr>
<th>PLANNER</th>
<th>NUMBER OF PROJECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self (Learner)</td>
<td>30</td>
</tr>
<tr>
<td>Intimate Non-Expert</td>
<td>3</td>
</tr>
<tr>
<td>Intimate Expert</td>
<td>3</td>
</tr>
<tr>
<td>Acquaintance Non-Expert</td>
<td>1</td>
</tr>
<tr>
<td>Acquaintance Expert</td>
<td>1</td>
</tr>
<tr>
<td>Paid Expert</td>
<td>2</td>
</tr>
<tr>
<td>Group Formal</td>
<td>2</td>
</tr>
<tr>
<td>Group Self Formed Interest</td>
<td>3</td>
</tr>
<tr>
<td>Material</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><strong>45</strong></td>
</tr>
</tbody>
</table>

### TABLE 16:

**REASONS FOR BEGINNING LEARNING PROJECT**

<table>
<thead>
<tr>
<th>REASONS</th>
<th>NUMBER OF RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>To take action</td>
<td>18</td>
</tr>
<tr>
<td>To obtain knowledge</td>
<td>7</td>
</tr>
<tr>
<td>To understand/increase sensitivity</td>
<td>2</td>
</tr>
<tr>
<td>To impart/teach/help others</td>
<td>1</td>
</tr>
<tr>
<td>Puzzlement/curiosity/question</td>
<td>1</td>
</tr>
<tr>
<td>Financial gain/promotion</td>
<td>1</td>
</tr>
<tr>
<td>Meet new and interesting people</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>35</strong></td>
</tr>
</tbody>
</table>
Over half of the learning projects (Table 16) were associated or initiated by the learner's felt need "to take action".

However, in contrast to formal education where one of the reported prime aims of participants is accreditation, few projects aim toward credit. In fact, 95% of responses answered non-credit.

TABLE 17:

<table>
<thead>
<tr>
<th>RESPONSES</th>
<th>NUMBER OF RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toward academic credit</td>
<td>1</td>
</tr>
<tr>
<td>Toward a formal certificate</td>
<td>1</td>
</tr>
<tr>
<td>Non-credit</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>46</td>
</tr>
<tr>
<td>RESPONSES</td>
<td>NUMBER OF RESPONSES</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Limited time</td>
<td>6</td>
</tr>
<tr>
<td>Limited money</td>
<td>4</td>
</tr>
<tr>
<td>Limited energy</td>
<td>3</td>
</tr>
<tr>
<td>Not knowing who to seek help from</td>
<td>1</td>
</tr>
<tr>
<td>Not knowing where to get information</td>
<td>2</td>
</tr>
<tr>
<td>Limited learning resources</td>
<td>1</td>
</tr>
<tr>
<td>Limited ability</td>
<td>4</td>
</tr>
<tr>
<td>Lack of companion with whom to learn</td>
<td>-</td>
</tr>
<tr>
<td>Other people's negative attitudes</td>
<td>8</td>
</tr>
<tr>
<td>None</td>
<td>15</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
</tbody>
</table>

This group of farmers did not appear to be having many problems with their learning projects. As most of them were self-planned learning projects, the learners seem competent to plan and to become actively involved in their learning.

Many learning projects were identified by the respondents. These were elicited with relative ease as the respondents obviously had a personal commitment to and involvement in all of the projects, especially the larger or major ones. Respondent A's list is given as an example.
TABLE 19:  

CASE ILLUSTRATION: RESPONDENT A 

LIST OF WORK-RELATED LEARNING PROJECTS

Artificial Insemination Course
Belonging to farm discussion group
Introduction of big hay bales
Teacher labour
Pasture management
Calf rearing—changed to new system
Purchase of feed-out wagon
Keeping of production graphs
Covering in barn
Extending herringbone cowshed
Cow condition trial.

NON-WORK RELATED PROJECTS

Making sewing desk
News—Current affairs
Getting to know neighbours
Learning indoor bowls
Learning to cope with stress and depression
Looking after children's development
Holiday to Australia.

From the above list it can be seen that an individual's learning projects can cover a wide area of interest, management and personal problems.
In Stage One the card sort produced some simple and brief strategies of learning projects. For instance, two farmers completed card sorts on NUI Ryegrass, both stated that the main educational accomplishment was "information gathering".

**TABLE 20 : RESPONDENT C : STRATEGY AND RESOURCES USED**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Resources</th>
<th>Identified Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watching</td>
<td>Working Example</td>
<td>(Some N.Z. Farms)</td>
</tr>
<tr>
<td>Thinking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asking</td>
<td>Discussion - Acquaintance Non-Experts (Individual N.Z. Farmers)</td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 21 : RESPONDENT D : STRATEGY AND RESOURCES USED**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Resources</th>
<th>Identified Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>Newspapers</td>
<td>(&quot;Weekly Times&quot;)</td>
</tr>
<tr>
<td>Asking</td>
<td>Self Formed Interest</td>
<td>(Neighbours (farmers))</td>
</tr>
<tr>
<td>Discussion</td>
<td>Formal Group</td>
<td>(D. of Ag. Farm Discussion Group)</td>
</tr>
</tbody>
</table>

Respondent C saw Nui Ryegrass for the first time on some New Zealand dairy farms, he thought about it and further queried the farmers who were using it. On returning to Australia, he used Nui Ryegrass on his own farm. It is interesting to note that he regarded the New Zealand farmers he spoke
to, not as experts, but as non-experts. The farmer gave this explanation:

"An expert is someone who is successful in his own field. These farmers are not agronomists, they're "trial and error men" like myself."

He added:

"I saw some farms that were better than others, some had a grass situation that others didn't have - some were using NUI and I thought it would be worth a trial in our situation."

Respondent D read about Nui Ryegrass in the "Weekly Times" newspaper, one of the farming journals published in Victoria. He discussed it with some neighbours and later at a Department of Agriculture farm discussion group. Here the dairy husbandry officer introduced the topic for discussion. After putting it into practice, i.e. sowing Nui into his pasture, a critical step was the on-going analysis of the results which began with the germination and continued with visual comparisons with the rest of the farm.

With all the card sorts related to completed (or continuing) projects, this farmer maintained that he always started by reading - reading was his initial source of information. He had, he said, little outside contact or outside interests. Yet in completing two card sorts on future projects, "reading" did not appear as part of his learning strategy. Instead, he went straight to either paid experts or acquaintance experts. This suggests either that there could be a difference between "espoused theories" and "theories in use" as defined by Argyris and Schon (1976), or that the complete strategy was not elicited through the interview discussion.

Respondent C completed a further card sort on a project he entitled "selecting a new bull". In this project his educational accomplishment
included skills, information gathering and the understanding of that information. The steps of learning activities which form this strategy were more numerous and complex. The resources for learning are also more numerous, but appear to have been bulked together, rather than set out in chronological sequence.

TABLE 22:

RESPONDENT C

PROJECT : SELECTING A NEW BULL

<table>
<thead>
<tr>
<th>Analysis</th>
<th>Existing Situation</th>
<th>(Herd Records)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(Daughter conformation)</td>
</tr>
<tr>
<td></td>
<td>Thinking</td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>Pamphlets, books</td>
<td>(Advertisements, Sale catalogues, Year Book (D.of Ag.), Breed Soc.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Journals, Show Results, Sire)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Survey Information)</td>
</tr>
<tr>
<td></td>
<td>Watching</td>
<td>(Pedigree Bulls and Daughters)</td>
</tr>
<tr>
<td>Discussion</td>
<td>Intimate Expert</td>
<td>(Named N.Z. Jersey Breeder (a friend))</td>
</tr>
<tr>
<td>Writing</td>
<td>Acquaintance Expert</td>
<td>(Other Stud Breeders)</td>
</tr>
<tr>
<td>Analyzing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asking</td>
<td>Intimate Experts, Acquaintance Experts</td>
<td>Named N.Z. Jersey Breeder</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other Stud Breeders</td>
</tr>
<tr>
<td>Doing</td>
<td>Purchase of Sire</td>
<td></td>
</tr>
</tbody>
</table>

Firstly, the respondent classified these farmers as experts - expert in the breeding of pedigree Jersey cattle. Whereas earlier farmers experimenting with new pasture species were non-experts. The strategy as listed approximates the classical "decision making" model of analysis of problem information collection, choice between alternatives, a decision and finally an action phase. Each action step was followed by thinking or
analysis. A large number of resources was used in collecting and checking the information, including an overseas trip to New Zealand, where a network of contact had been established. In this case, the "intimate expert", a New Zealand Jersey breeder, (who the respondent called a friend), played two important roles in the learner's strategy. He was an important source of "expert knowledge" and secondly his "experience and success" gave the learner reassurance that his decision was in fact a good one.

One of the farmer's final comments about this particular project was, "....one of the satisfactions of the job is that you tend to back your judgements."

In all, three respondents completed twenty-three card sorts, all but one of those projects were work related. Possibly an intensity measure of use is obtained in aggregating the information. The meaning of this aggregation and its practical use is questionable - each project is conducted by a particular individual, in a particular context and that context may be the most dominant factor, e.g. the urgency of project completion - if you have time to read a book you may but if the information is required within five minutes, then a telephone call may be more practicable. However a sequence ranking of the data is shown in the following tables:
### TABLE 23:

**SEQUENCE RANKING**

**OVERALL RANKING OF ACTIVITY CARDS**

<table>
<thead>
<tr>
<th>ACTIVITY SEQUENCE</th>
<th>MEAN POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognising Problem</td>
<td>1.29</td>
</tr>
<tr>
<td>Watching</td>
<td>3.00</td>
</tr>
<tr>
<td>Thinking</td>
<td>3.10</td>
</tr>
<tr>
<td>Reading</td>
<td>3.44</td>
</tr>
<tr>
<td>Writing</td>
<td>3.66</td>
</tr>
<tr>
<td>Asking</td>
<td>3.71</td>
</tr>
<tr>
<td>Discussion</td>
<td>4.00</td>
</tr>
<tr>
<td>Listening</td>
<td>4.66</td>
</tr>
<tr>
<td>Practising</td>
<td>5.66</td>
</tr>
<tr>
<td>Analysing</td>
<td>5.77</td>
</tr>
<tr>
<td>Doing</td>
<td>7.41</td>
</tr>
</tbody>
</table>

With so few respondents, it is hard to draw any conclusions from the particular data. However, it is a very different pattern from Underwood's result, perhaps illustrating interviewer differences, contextual differences and the probable impracticality of such an analysis and comparison. The same argument applies to the learning resource data from the card sorts.
<table>
<thead>
<tr>
<th>RANKING SEQUENCE</th>
<th>MEAN POSITION</th>
<th>FREQUENCY OF MENTION (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magazines</td>
<td>1.00</td>
<td>4.6</td>
</tr>
<tr>
<td>Newspapers</td>
<td>2.67</td>
<td>3.5</td>
</tr>
<tr>
<td>Working Example</td>
<td>2.67</td>
<td>10.5</td>
</tr>
<tr>
<td>Paid Expert</td>
<td>2.75</td>
<td>13.9</td>
</tr>
<tr>
<td>Pamphlets</td>
<td>2.80</td>
<td>5.8</td>
</tr>
<tr>
<td>Group Instructor</td>
<td>3.00</td>
<td>3.5</td>
</tr>
<tr>
<td>Intimate Non-Expert</td>
<td>3.00</td>
<td>1.2</td>
</tr>
<tr>
<td>Books</td>
<td>3.50</td>
<td>4.6</td>
</tr>
<tr>
<td>Acquaintance Expert</td>
<td>3.50</td>
<td>32.6</td>
</tr>
<tr>
<td>Self Formed Group</td>
<td>3.60</td>
<td>5.8</td>
</tr>
<tr>
<td>Displays/Exhibits</td>
<td>4.00</td>
<td>2.3</td>
</tr>
<tr>
<td>Acquaintance Non-Expert</td>
<td>4.00</td>
<td>7.0</td>
</tr>
<tr>
<td>Intimate Expert</td>
<td>4.00</td>
<td>4.7</td>
</tr>
</tbody>
</table>

The acquaintance expert was the most frequently used resource. Other farmers were identified as being the learning resource in approximately 40% of the situations where the respondent nominated acquaintance expert.
STAGE TWO : PROCEDURE

LOCATION - MELBOURNE

Stage Two of the field work can be divided into two parts;

PART A - Review of Stage One techniques and skills.

PART B - Development of "clinical" methodology and "conversational" techniques.

PART A involved assessing the effectiveness of the techniques used in interviewing the first five farmers. The written material was read and the tape recordings played. Two subsequent interviews were conducted at the University using audio-visual recording equipment. The subjects were staff members of the Extension Research Unit. These recordings were closely examined, the feedback to the researcher being invaluable in identifying weaknesses in interviewing skills. The skills that required improvement were those developed for counselling. Carkhuff et. al. (1972) developed a basic model upon which helping skills are based:

EXPLORING → UNDERSTANDING → ACTING

This has been further refined by Carkhuff (1977) in putting the helping and learning processes together in a helping model.

ATTENDING → RESPONDING ← PERSONALIZING ← INITIATING

Carkhuff P.ii (1977)

The Carkhuff helping model was adopted by the researcher and skills were developed to incorporate the method into the interview.
In the two interviews conducted in Melbourne and audio-visually recorded, the number of card sorts on learning activities and resources used was reduced to three and four sorts respectively. In Stage One, doing seven or eight "learning activity" card sorts became repetitious and did not allow the researcher to discuss any one strategy adequately. The only other information collected was a list of learning projects, active over the previous twelve months and whether or not these were work or non-work related projects.

PART B - A decision was taken to allow the respondents to become more involved in the development of the learning activities listed. It was felt that the printed cards were restricting the discussions and imposing unnecessary structure to the information gathering, i.e. the structure was predetermining the resultant learning strategies set out by the respondents. The question was, could farmers verbalize their own learning strategies? If they could, would they then be telling us what they thought they did or what they actually did? Could the "espoused theories" and the "theories in use" defined by Arygris and Schon (1976) be identified?

Three further interviews were conducted in Melbourne to test the respondent's initial ability to verbalize his own learning strategies. A retired farmer, a fellow student and a technical officer at the University were interviewed.

A list of "learning projects" for the past twelve months now served as an introduction to the interview. Respondents then chose one project for closer observation.
Development of "Clinical" Methodology

The respondents were asked to list the learning activities or steps taken, in chronological order. These learning project activities were written and spaced down the left-hand side of a large sheet of paper. This was in effect, the "how" of the project; the discussion and questioning then centred on the "why" of the component steps of the strategy. The respondents were asked why each step was important. These comments were written down the centre of the researcher's working paper, forming a list to be called the "word generation".

The respondents having completed the "word generation", were asked to make a selection of the "most important" or "critical" comments from that word generation. This selection was written down separately, to form the "key word selection".

Respondents were allowed time to reflect on what personal meaning this "key word selection" had for them. This insight into some of the factors governing their learning, i.e. verbalized personal attitudes, values and higher order ideas, influenced their actions or behaviour. These ideas and thought patterns, by their very nature, tend to be subject orientated rather than object orientated. These assumptions guide the person's actions and are used to anticipate events when faced with a decision.

The respondents were asked to identify the learning resources and the relative importance of each of these resources, towards the successful completion of the learning project.
The printed cards used earlier in the card sorts were now being replaced by written notes and headings on the large working sheet of paper. The working sheet now became the physical artefact or third component of the conversation. The lists and strategies were jointly perceived and understood by the participants (the respondent and researcher) and were open to external observation. In this project the researcher took a less active role than that of a teacher.
The demographic data of the five respondents is set out in Table 25, followed by the learning project data tables.

### TABLE 25:

**DEMOGRAPHIC DATA**

<table>
<thead>
<tr>
<th>RESPONDENT</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>20-24</td>
<td>25-29</td>
<td>25-29</td>
<td>40-44</td>
<td>60 plus</td>
</tr>
<tr>
<td>Occupation</td>
<td>Research</td>
<td>Research</td>
<td>Technician</td>
<td>Student</td>
<td>Retired</td>
</tr>
<tr>
<td>Marital Status</td>
<td>S</td>
<td>M</td>
<td>S</td>
<td>S</td>
<td>W</td>
</tr>
<tr>
<td>Family Status (No. of Children)</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Formal Education (No. of years)</td>
<td>17</td>
<td>16</td>
<td>16</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>Number of Clubs/Associations</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Number of Recreational Activities</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>
TABLE 26:

LEARNING PROJECT DATA

<table>
<thead>
<tr>
<th>RESPONDENT</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Projects</td>
<td>9</td>
<td>18</td>
<td>8</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>No. of Work Related Projects</td>
<td>3</td>
<td>11</td>
<td>4</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Percentage Work Related Projects</td>
<td>33%</td>
<td>61%</td>
<td>50%</td>
<td>40%</td>
<td>20%</td>
</tr>
</tbody>
</table>

TABLE 27:

SUMMARY OF LEARNING PROJECT DATA (N=5)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Number Learning Projects/Respondent</td>
<td>15</td>
</tr>
<tr>
<td>Range of Learning Projects/Respondent</td>
<td>8 - 30</td>
</tr>
<tr>
<td>Total Percentage Work Related Projects</td>
<td>37%</td>
</tr>
</tbody>
</table>

This group of five people was a very mixed sample (age, occupation, marital status, family status and involvement in recreational activities).

Stage Two respondents had more years of formal education than Stage One respondents. There was no consistent pattern relating years of formal education to the number of learning projects. Respondent J, who listed 30 learning projects, had a philosophy that:

"Learning is life."
In the previous 12 months, he had retired from his farm and was involved in several major projects. He added:

"Thirty projects may well be the minimum number of projects I've been involved with. It would be a pretty poor show if I haven't learnt something during that period."

One major difference between this sample and the Stage One sample, is the percentage of projects which are work related (37% cf. 74%). It is not clear whether this relates specifically to farmers or to self employed persons, i.e. a high percentage work related projects.

**CARD SORTS**

PART A involved a total of seven card sorts, with two respondents (F and G). These were recorded with audio-visual equipment for the purpose of the researcher's personal assessment. In Stage One, the strategies described were relatively simple and linear. However, in seeking simplicity, reality may have been distorted. Two examples are shown which illustrate this point. The cards and the 'learning activity' titles, appeared to have limitations and were constricting the respondent's scope to discover and discuss his own actions and emotions or inner thoughts.
In Example 1, the learning activities listed form a continual loop, with no apparent end point. No doubt an end-product is produced but this is not in itself an end point for the learning. In fact, it could well be the end and the start of a learning project. The project could finish at any time, at any stage, through loss of interest. Although the analysis is primarily done by the learner himself - he seeks the opinions of acquaintance experts (?) and non-experts. The term "expert" is questioned, firstly because in terms of wine quality or taste it is regarded as a contentious issue. Secondly the learner is defending his own ability to judge the quality of his product. The opinions of acquaintances were sought and accepted but their judgement queried.
In Example 2, respondent G has a linear strategy listed but has demonstrated the complexity of the project with the use of the learning resource cards. This total project contains four do loops before reaching an end-point.

Important in this project is the role of the intimate non-expert, (the learner's wife) - listed adjacent to 'thinking'. The learner reflected:

"My wife played an important role. although not an expert, regarding the particular problem, I could always seek her opinion.....it was reassuring. No it was more than opinion it was her considered judgement."

Without his wife's support, the project would have been more difficult and may not have been completed. This reassurance is important to the learner.

Neither of these two examples could be analysed satisfactorily by aggregation. Each learning project is personalized and in a distinctive
context.

In PART B, three learning projects were examined by three different respondents, using the new methodology. The three projects were very different in nature and all were non-work related; choice of a lunch from a restaurant menu, purchase of a ring and learning about tissue culture techniques.

The respondents, using their own words and ideas, listed their learning 'strategy', created the 'word generation' (list of ideas) and chose the 'key word selection'. The personal thoughts and meanings gained during the exercise were discussed throughout the interview with the researcher. Reflection requires some time and patience by the interviewer.

Respondent 1, in examining her project, gained considerable insight. Purchase of a ring was the goal of the project but learning continued after purchase. She felt that she continued to learn and gain insight about herself, in her reactions to the ring and from other people's responses to her purchase.

"The rewards and pride of ownership, tell me something about myself ... when I think about it."

The learner's strategy was listed in chronological order by the respondent. This created no problems. The word generation was more difficult to verbalize. The reasons why certain actions took place were quite clear to the learner, however others required considerable reflection. It was as though some of the learner's actions in seeking information and choosing between alternatives, was automatic, almost programmed.
"I know I always do it that way but I've never really thought 'why' I do it."

In choosing the key words, the respondent was able to establish an insight or the underlying reasons 'why', i.e. why the project was undertaken in the first place and why the strategy was as it was set out. For her the ring was an example of an abstract representation she had of herself which illustrated some of her attitudes and closely held values. The concepts of continuity, inheritance and creation were all important. However, the key issue was her 'sensitivity about failure' - failure to create, failure to ensure continuity and failure to pass on an inheritance. Trust had to be established between the researcher and respondent, for the respondent to share some of her "closely held secrets". This woman was unable to conceive children but desperately wanted her family to inherit her ideals and values, to continue the family name. The discussion was "deep" and delved much further into her private life, beliefs and values, than she would normally speak to other people about.

The concepts of continuity, inheritance, creation and failure emerged for the first time in the study looking like "core constructs" or governing variables". For the researcher a certain magic or "ah ha!" milestone had been achieved.

In analysing this interview, it was considered that the respondent was able to reflect on why she entered into this particular project and what importance the end goal had for her. However, reflecting on how she went about her project was more difficult. From an interviewer's point of view, this aspect would need more attention in future interviews.
One aspect was clarified, i.e. the three respondents demonstrated that they could verbalize their learning strategies and some of the factors influencing those strategies. The word generation and key word selection were eliciting mainly subject-orientated responses.
STAGE THREE : PROCEDURE

LOCATION - Western District and Maffra, Victoria, Australia.

The "Clinical" methodology developed in Stage II was taken into the field and tested with ten dairy farmers. Five interviews were conducted in two of the major dairying areas of Victoria, namely Warrnambool in the Western District and Maffra in East Gippsland. The researcher contacted a Dairy Husbandry Officer (Department of Agriculture, Victoria) in each of those districts, asking for a list of dairy farmers, with whom they had had extension contact during the previous twelve months and who in their opinion had completed a major "learning project" during that same year. The study definition of a learning project was carefully explained to each officer. The researcher was presented with a total list of twenty farmers' names, of whom ten were randomly selected then contacted by telephone and invited to participate in the study.

The researcher believed it important, that he now concentrate his efforts on his target group ie. dairyfarmers who had both contact with extension officers and had undertaken and completed a major learning project during the past twelve months. The aim of the interview was now to get a better understanding of how the respondent "used" other people as learning resources during completion of his farm related project. Particular attention was to be focussed on his use of extension officers.

Interviews now used a work sheet of paper, a tape recorder and a non-directive questioning technique with a pre-planned routine. The conversation between researcher and respondent, particularly the probing
(researcher) and reflection (respondent), were thought to be the key to a better understanding of the process of learning. At each interview a positive attempt was made to ensure that the respondent also gained by the experience through a better understanding of himself and his own behaviour.

During Stage Three the following routine was adopted and maintained:

A An introduction to the research study and data sheet.

B A clear definition of learning project was given and the respondent asked to select a major project completed during the last twelve months on his farm which he was prepared to discuss with the researcher. A list of projects completed aided this selection.

C The component steps of the strategy were developed in chronological order.

D The "word generation" followed, i.e. why each step was important.

E At this stage the resources for each step were identified.

F The respondent then was asked to make a "key word" (or phrase) selection from his word generation.

G Time was then given for the respondent to reflect on a personal meaning or his understanding of what had come out of the interview.

H The human resources were classified according to the learning resource and identified into occupational groupings.

I The respondent then organized the people he had listed as learning resources into "a most important to least important" ranking.
The researcher asked for feedback on the interviewing, then thanked the respondent for his cooperation.

Back at the University the researcher rewrote the learning project worksheet using the rough sheet generated in front of the respondent and the tape which recorded the interview. A combination of the strategy in chronological order and the learning resources (people) data, then enabled a learning pathway to be developed. Each respondent was asked to group the people he contacted into intimates, acquaintances or paid experts — according to their social distance from himself, as he perceived it.

By overlaying the learner's social environment with his learning pathway a diagram evolves which clearly describes the learning process the respondent had experienced during his project. These diagrams became known as "Petal diagrams" due to their flower-like appearance, caused by the cyclic nature of the learners' contact with and use of other people. The petal diagrams became the focus to understanding the adult learning process.

A fellow researcher from the Agricultural Extension Research Unit, University of Melbourne, observed the second five interviews in Stage three to monitor the interview technique, questioning bias and the researcher's ability to direct the interview along the planned routine.
RESULTS — STAGE THREE

The demographic and learning project data are given for the ten respondents, followed by a summary of the learning project data and major learning project. One case illustration (Respondent L) is shown, to enable an understanding of the point reached in the development of the methodology during Stage Three.
### TABLE 30: DEMOGRAPHIC DATA

<table>
<thead>
<tr>
<th></th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>P</th>
<th>Q</th>
<th>R</th>
<th>S</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupation</td>
<td>S/M</td>
<td>Owner</td>
<td>S/M</td>
<td>Owner</td>
<td>Owner</td>
<td>Owner</td>
<td>Owner</td>
<td>S/M</td>
<td>S/M</td>
<td>S/M</td>
</tr>
<tr>
<td>Marital Status</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>S</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td>Family Status</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Formal Education</td>
<td>12</td>
<td>11</td>
<td>17</td>
<td>10</td>
<td>7</td>
<td>10</td>
<td>14</td>
<td>15</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>(No. of years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Clubs</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Number of recreational activities</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

### LOCATION

- WARRNAMBOOL
- MAFFRA
### TABLE 31: LEARNING PROJECT DATA

<table>
<thead>
<tr>
<th>RESPONDENT</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>P</th>
<th>Q</th>
<th>R</th>
<th>S</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Projects</td>
<td>8</td>
<td>20</td>
<td>26</td>
<td>8</td>
<td>5</td>
<td>16</td>
<td>14</td>
<td>16</td>
<td>15</td>
<td>24</td>
</tr>
<tr>
<td>No. of Work Related Projects</td>
<td>6</td>
<td>16</td>
<td>16</td>
<td>6</td>
<td>5</td>
<td>7</td>
<td>9</td>
<td>8</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>Percentage Work Related Projects</td>
<td>75%</td>
<td>80%</td>
<td>62%</td>
<td>75%</td>
<td>100%</td>
<td>40%</td>
<td>64%</td>
<td>50%</td>
<td>53%</td>
<td>71%</td>
</tr>
</tbody>
</table>

### TABLE 32: SUMMARY OF LEARNING PROJECT DATA (N=10)

- **Mean Number Learning Projects/Respondent**: 15
- **Range of Learning Projects/Respondent**: 5 - 26
- **Total Percentage Work Related Projects**: 64.5%
### TABLE 33:
**TITLE OF MAJOR LEARNING PROJECT — CHOSEN FOR DISCUSSION**

<table>
<thead>
<tr>
<th>RESPONDENT</th>
<th>TITLE OF PROJECT</th>
<th>TOTAL NO. OF PEOPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>K</td>
<td>Choosing an A.I. Diary Herd Sire</td>
<td>8</td>
</tr>
<tr>
<td>* L</td>
<td>Building a new Herringbone Cowshed (Syndicate)</td>
<td>96</td>
</tr>
<tr>
<td>M</td>
<td>Building a Rotary Cowshed</td>
<td>20</td>
</tr>
<tr>
<td>N</td>
<td>Developing a new pasture</td>
<td>6</td>
</tr>
<tr>
<td>O</td>
<td>Getting a better in-calf rate in herd</td>
<td>9</td>
</tr>
<tr>
<td>P</td>
<td>Purchasing additional farm land</td>
<td>20</td>
</tr>
<tr>
<td>Q</td>
<td>Purchase of dairy farm</td>
<td>12</td>
</tr>
<tr>
<td>R</td>
<td>Putting in new irrigation</td>
<td>18</td>
</tr>
<tr>
<td>S</td>
<td>Building a new hay barn</td>
<td>9</td>
</tr>
<tr>
<td>T</td>
<td>Purchasing a new farm tractor and hay baler</td>
<td>14</td>
</tr>
</tbody>
</table>

Average number of people/project = 21

* No of people includes two large groups
TABLE 34:
SUMMARY OF STAGE III, PEOPLE USED CLASSIFICATION/OCCUPATION

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Percent</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>People used</td>
<td>212</td>
<td>-</td>
<td>21</td>
</tr>
<tr>
<td>Groups/chance acquaintances</td>
<td>42</td>
<td>20%</td>
<td>10</td>
</tr>
<tr>
<td>Paid experts/non experts</td>
<td>102</td>
<td>48%</td>
<td>10</td>
</tr>
<tr>
<td>Acquaintances</td>
<td>55</td>
<td>26%</td>
<td>6</td>
</tr>
<tr>
<td>Intimates</td>
<td>13</td>
<td>6%</td>
<td>2</td>
</tr>
<tr>
<td>Paid experts</td>
<td>100</td>
<td>67%</td>
<td></td>
</tr>
<tr>
<td>Acquaintance experts) experts only</td>
<td>42</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>Intimate experts ) (N=15)</td>
<td>8</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>10</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Farmers</td>
<td>126</td>
<td>59%</td>
<td></td>
</tr>
<tr>
<td>Extension Officers - Dept. of Ag.</td>
<td>10</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>- others</td>
<td>3</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Local business</td>
<td>32</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>Banks</td>
<td>6</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Professionals</td>
<td>20</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>others</td>
<td>5</td>
<td>2%</td>
<td></td>
</tr>
</tbody>
</table>

Extension Officers were classified (N=13)
TABLE 35:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Dept. of Agriculture (Vic)</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intimate expert</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Acquaintance expert</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Paid expert</td>
<td>31% acquaintance expert</td>
<td>69% paid expert</td>
</tr>
</tbody>
</table>

NOTE The farmers were chosen because they had contact with an extension officer from the Department of Agriculture (Victoria). However, two farmers did not list the Extension Officer (Dairying) as a resource person.

TABLE 36:

CASE ILLUSTRATION - RESPONDENT L

GENERAL DATA - see Demographic Data Table

FARM DATA

106 hectares 89 cows

17,770 Kgs milkfat 1978-79 season (149 cows)

119 Kgs milkfat/cow, 168 Kg milkfat/hectare

Stocking rate - 1.78 milking cows/hectare.
STRATEGY SEQUENCE

1. Idea
2. Checked Feasibility
3. Collected Information
4. Lobbied Dad
5. Different Options
6. Looked at Options
7. Made a Decision – Herringbone
8. Builder Booked and Planned
9. Planned Herringbone
10. Built Dairy
11. Obtained Finance
12. Completed Building
13. Planned Operation – Syndicate

KEY WORD SELECTION

A. Actual getting of idea – conference.
B. Dad’s aspirations for sons – for each to own his own farm.
C. "It makes good sense" – statement farm consultant.
D. Our lifestyle was improved by it.
E. I don't like working by myself.
F. I trusted our accountant to get finance.

This learning project contained
- seven cyclic petals (see figure)
- using an estimated 96 different people.
The farmer classified these people as follows:

- chance acquaintances: 6
- self formed interest groups: 80 (2)
- paid expert: 3
- acquaintance expert: 4
- intimate expert: 2
- intimate non-expert: 1

96 people

Self formed interest groups - 1 large herds conference
- 2 bus load of farmers interested in building new cowsheds.

Occupations were:

- family - farming partners: 2
  - contractor: 1
- farmers/farming neighbours: 36
- conference participants (majority farmers): 50
- extension officers - Dept. of Agriculture (Vic): 2
  - private consultants: 1
- contractors - local business: 2
- professionals, e.g. accountants: 2

96
TABLE 37:

MOST IMPORTANT TO LEAST IMPORTANT PEOPLE - Respondent's ranking based on not specific.

(A) not specific ie. importance criteria.

1. Intimate expert - brother - farming partner
2. Intimate non-expert - father - farming partner
3. Acquaintance expert - farm consultant
4. Acquaintance expert - Dept. of Ag. (Vic) - Dairy Husbandry
5. Acquaintance expert - Dept. of Ag. (Vic) - Shed Design
6. Acquaintance expert - Accountant
7. Intimate expert - brother - contractor
8. Chance acquaintances - other farmers, owners of new sheds
9. Paid expert - builder
   - architect
   - welder
10. Self formed interest group - large herds conference
11. Self formed interest group - farmer bus load.
INTERVIEW DISCUSSION

The project description, in particular the learner's "strategy" sequence" and "keyword" selection, summarize the interview. The strategy sequence shows what the learner's steps were in completing his project.

The "keyword selection" gives a concise summary of critical sequences (actual getting of idea), problems encountered (Dad's aspirations, not enjoying working by himself), morale highlights that ensured project completion (supporting statement by farm consultant, statement of trust in Accountant's ability). The keyword selection came out of the text as given, however the selection of "Our lifestyle was improved by it" probably was the central point as to why this project was undertaken.

In discussing the personal meaning of the keyword selection and the project as a whole the respondent said,

"I'm definitely looking for an improved lifestyle and if I was a loner, it would never have entered my head to go into something like this (syndicate use of cowshed)."

Reflecting on the amount of time it took to complete the project (several years from initial idea),

"It amazes me with other aspects of farming how often you've seen it, before the penny drops. Perhaps two years later you finally get on with the job, goodness knows why you delay."

Several aspects of the project gave concern to the respondent, some of which were quite stressful. In particular, his negotiations with his father.

"We heard about the idea (syndicate cowshed) at a conference but the idea came to a sudden halt right there, because Dad wanted
nothing to do with it, he wouldn't have a bar of it. We couldn't get any co-operation from Dad at all, we had to be careful not to get his back up, for he had the means to stop us completely. In the end he gave us a negative approval, he wasn't going to oppose us unless we wanted a rotary cowshed."

His father was making a stand, and his sons had to convince him the new was better than the old.

"We ripped down the old sheds he'd worked in all his life, he just couldn't see.....he just didn't know why.....he did admit later that he could see the point....he's pleased as punch now but he was very hard to live with while we were building it. We would have lobbied him harder if we had had the money. The real reason Dad opposed it I believe was that his concept of having sons on the land was to have each of us on our own little farm and not sharing a common cowshed with a big herd."

Reflecting on his own learning process, particularly on his use of those people he'd classified as acquaintances

"Some farmers probably as a result of their background are pretty self-opinionated, if they have an idea they'll justify it, right or wrong. They aren't prepared to look around. I think I canvassed pretty well to find someone who'd say it won't work, especially the likes of the Accountant and the Department of Agricultural Officers (christian names used). I think a lot of people avoid people they think might oppose their opinions."

This farmer used both government officers and a private consultant to help him with his project. In justifying his reason for using a consultant he explained:
"The consultant (christian name used) earns his living by telling people the right thing to do. He has experience and the back up to help him if he hasn't experienced it......we're pretty confident we got a fair assessment of the prospects."

And of the Department of Agriculture officers also called by their christian names and classified as acquaintances:

"Having seen a few sheds, I went to the Department for their expert opinion......now I'm not being critical but they were not really committed to the project. They were pro-rotary, that's alright as they can have their likes and dislikes but they gave the impression that if we came unstuck then there was no way we could make them wear it......typical of Government departments but realistic too I guess."

His use of acquaintances (see Figure 10) seemed to be in a pattern, whereby he sought information (e.g. visiting other farms attending a conference), discussed it with an intimate (e.g. his brother) then sought an expert opinion, perhaps looking for an opposing view from an acquaintance (e.g. Farm Consultant, Department of Agriculture Officers, Accountant.) This pattern continued as he resolved one facet after another and negotiated around his father's opposition, until the project was completed or at least a stage was completed (cowshed built). One can imagine a continuum of cycles e.g. getting the herd used to the new shed, teaching labour in the shed, working in with his brother, increasing cow numbers etc. Discussing a major learning project with a farmer appears to be like looking at one chapter of a book or recording one scene on a video-tape then stopping with a single snap shot.
One other aspect of learning or decision making came out of this interview (as it did with many of the interviews) i.e., learning or decision making can be very stressful to the adult learner. This particular respondent had sought medical help and medication.

"It almost got too much......finally my family forced me to go for help.....my biggest worry was that the concept wouldn't work, I wasn't at all concerned about the builder or the building I knew that would be fine....it was the ideas rather than the physical aspects of tin on the roof....Dad has a bit to answer for......he put us through the hoops but I think I'd miss him if he wasn't there to conduct the opposition. I've got used to him opposing everything, so I have to think it out properly and stick to it until he can see the benefits. At times I got really pessimistic that we'd ever get it through him."

Other stressful factors were referred to during the interview such as available finance, could he cope with large numbers of cows and was it going to be finished on time.

This learning project was in itself part of an overall plan for the future.

"I don't have an option about being or not being a dairy farmer. I'm happy enough being a farmer although at times I get down in the mouth about where it's leading. A dairy farmer should aim to have his options open....I don't want to have to milk after I'm fifty. The new dairy aimed at improving my lifestyle so that I'd have a choice at 50 or 55 years."

In Stage III the interviews averaged nearly two hours each (Respondent
time 3 hours) and a similar time was spent on each interview, rewriting and tidying the details. An attempt was made to get a typist to type word for word off the tape, however this was an arduous task and in fact difficult to read due to superfluous material.

During the second five interviews held on farms in the Maffra district, the interviews were observed by a fellow researcher. The major problem highlighted through this observation was that the open ended nature of the non-directive questioning technique led to there being no direction or obvious plan being followed by the researcher. The researcher had to decide what he wanted out of the interview rather than meandering through a smorgasbord of material that was being generated by the technique.

The following decisions were made so that Stage Four had more direction and purpose:

1. Clearly elicit the sequence and resources used in each project.

2. Discover how the learner was using paid experts, acquaintances and intimates.

3. Get in-depth information on the use of intimates and extension officers.

4. Investigate further the stress factor associated with learning.

5. Probe for key or higher order constructs that were having major influences on the process of learning.
FIGURE 10  RESPONDENT L.
People Classification

PROJECT: NEW DAIRY SHED

PETAL DIAGRAM

Key Appendix B
STAGE FOUR: PROCEDURE

LOCATION - Te Awamutu/Cambridge Districts
          Waikato, New Zealand.

The plan of Stage Four was two-fold.

1. To test the methods tried in Stage Three with the five specific aims
   listed in the discussion of Stage Three and,

2. Attempt in Stage IV and V (to be the final run) to get an equal number
   of interviews in New Zealand as had been achieved in Victoria to allow
   for comparison.

A New Zealand Dairy Board Consulting officer from Te Awamutu was
contacted and asked to supply a list of farmers (10) who would qualify on
the same grounds as those farmers interviewed in Stage Three i.e. extension
contact and having completed a major learning project during the past twelve
months. Five dairy farmers were randomly selected from the list supplied
and an appointment arranged by telephone. Each interview was tape recorded
and the interview worked through using a large work sheet of paper. During
each of the five interviews, the respondent's wife joined the interview and
to varying degrees joined in the discussion. During the Australian sector,
i.e. Stages I, II and III this had rarely happened and where the wife or
other family member had been present they had not participated. A decision
was taken to direct the questioning to the male member of the family but to
invite the active involvement of his wife where it could be constructive.
RESULTS STAGE FOUR - WAIKATO/NEW ZEALAND

The demographic, learning project and summary of project data are given for all five respondents in Table 38. The topic or title of each interviews project and the number of people involved also is given. Two case illustrations are given in more detail to highlight the cyclic nature of the people resource usage, the specific use of certain people and the differing use made of the same extension officer by two different farmers.

TABLE 38 :

<table>
<thead>
<tr>
<th>DEMOGRAPHIC DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RESPONDENT</strong></td>
</tr>
<tr>
<td><strong>U</strong></td>
</tr>
<tr>
<td><strong>Age</strong></td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
</tr>
<tr>
<td><strong>Family Status</strong></td>
</tr>
<tr>
<td><strong>Formal Education</strong></td>
</tr>
<tr>
<td><em>(No. of years)</em></td>
</tr>
<tr>
<td><strong>No. of Clubs/Associations</strong></td>
</tr>
<tr>
<td><strong>No. of Recreational Activities</strong></td>
</tr>
</tbody>
</table>

LOCATION TE AWAMUTU/CAMBRIDGE
### LEARNING PROJECT DATA

<table>
<thead>
<tr>
<th>RESPONDENT</th>
<th>U</th>
<th>V</th>
<th>W</th>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Projects</td>
<td>25</td>
<td>24</td>
<td>21</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>No. of Work Related Projects</td>
<td>20</td>
<td>16</td>
<td>16</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>Percent Work Related Projects</td>
<td>80%</td>
<td>67%</td>
<td>76%</td>
<td>87%</td>
<td>47%</td>
</tr>
</tbody>
</table>

At the end of Stage Four it was decided that no further data would be collected from respondents on the number of learning projects completed during the year. This would enable more time for discussion on the major learning project. It is therefore appropriate to summarise that data from the first four stages of this study.
<table>
<thead>
<tr>
<th>People used</th>
<th>Total</th>
<th>Percent</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups/chance acquaintances (Not all projects)</td>
<td>32</td>
<td>20%</td>
<td>14</td>
</tr>
<tr>
<td>Paid experts/non experts</td>
<td>58</td>
<td>36%</td>
<td>12</td>
</tr>
<tr>
<td>Acquaintances</td>
<td>45</td>
<td>28%</td>
<td>9</td>
</tr>
<tr>
<td>Intimates</td>
<td>25</td>
<td>16%</td>
<td>5</td>
</tr>
<tr>
<td>Paid Experts )</td>
<td>52</td>
<td>50%</td>
<td>10</td>
</tr>
<tr>
<td>Acquaintance Experts) Experts only</td>
<td>38</td>
<td>36%</td>
<td>8</td>
</tr>
<tr>
<td>Intimate experts ) (N=105)</td>
<td>15</td>
<td>14%</td>
<td>3</td>
</tr>
<tr>
<td>Family</td>
<td>21</td>
<td>13%</td>
<td>4</td>
</tr>
<tr>
<td>Farmers</td>
<td>77</td>
<td>48%</td>
<td>15</td>
</tr>
<tr>
<td>Extension Officers - NZDB</td>
<td>5</td>
<td>3%</td>
<td>1</td>
</tr>
<tr>
<td>- MAF/FAO</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Others</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contractors/local business</td>
<td>17</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Government Depts./local authority</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banks/lending institutions (including</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural Bank)</td>
<td>19</td>
<td>12%</td>
<td>4</td>
</tr>
<tr>
<td>Professionals</td>
<td>16</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 41:

**EXTENSION OFFICERS WERE CLASSIFIED (N=8)**

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>NZBD</th>
<th>MAF/FAO</th>
<th>OTHERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intimate expert</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquaintance expert</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Paid expert</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Paid non-expert</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chance acquaintance</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TABLE 42:

**SUMMARY OF LEARNING PROJECT DATA (N=5)**

<table>
<thead>
<tr>
<th>Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean number learning projects/respondent</td>
<td>21</td>
</tr>
<tr>
<td>Range of learning projects/respondent</td>
<td>16-21</td>
</tr>
<tr>
<td>Total percentage work related projects</td>
<td>71%</td>
</tr>
</tbody>
</table>
TABLE 43:

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Title of Project</th>
<th>Total No. of People</th>
</tr>
</thead>
<tbody>
<tr>
<td>U</td>
<td>First farm purchase</td>
<td>20</td>
</tr>
<tr>
<td>V</td>
<td>Employing a sharefarmer</td>
<td>40</td>
</tr>
<tr>
<td>W</td>
<td>Applying for a larger sharemilking job</td>
<td>15</td>
</tr>
<tr>
<td>X</td>
<td>Farm purchase</td>
<td>43</td>
</tr>
<tr>
<td>Y</td>
<td>Enlarging existing cowshed</td>
<td>42</td>
</tr>
</tbody>
</table>

Average number of people/project 32

TABLE 44:

OVERALL SUMMARY OF LEARNING PROJECT DATA (N=25)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>For Study</th>
<th>Per Respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of interviews</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>5</td>
<td>25</td>
<td>*</td>
</tr>
<tr>
<td>Number of projects</td>
<td>45</td>
<td>75</td>
<td>152</td>
<td>105</td>
<td>377</td>
<td>15.1</td>
</tr>
<tr>
<td>Mean number/respondent</td>
<td>9.4</td>
<td>15.0</td>
<td>15.0</td>
<td>21.0</td>
<td></td>
<td>15.1</td>
</tr>
<tr>
<td>Number work related</td>
<td>35</td>
<td>28</td>
<td>98</td>
<td>75</td>
<td>236</td>
<td>10.4</td>
</tr>
<tr>
<td>Percent work related</td>
<td>74%</td>
<td>37%</td>
<td>64%</td>
<td>71%</td>
<td></td>
<td>69%</td>
</tr>
<tr>
<td>Range in numbers</td>
<td>0-18</td>
<td>8-30</td>
<td>5-26</td>
<td>16-25</td>
<td></td>
<td>0-26</td>
</tr>
<tr>
<td>Range work related</td>
<td>0-11</td>
<td>3-11</td>
<td>5-17</td>
<td>9-20</td>
<td></td>
<td>0-20</td>
</tr>
</tbody>
</table>

* Dairyfarmers only (ie. exclude stage 2 results)
It is difficult to separate sample differences from researcher experience and interviewing skill in analysing the differences between the four stages.

TABLE 45:

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Tough &amp; Gordon</th>
<th>Peters &amp; Gordon</th>
<th>McCatty</th>
<th>Miller</th>
<th>Underwood</th>
<th>Phillips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of</td>
<td>N=66</td>
<td>N=277</td>
<td>N=149</td>
<td>N=54</td>
<td>N=9</td>
<td>N=30</td>
</tr>
<tr>
<td>Respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean number of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Projects</td>
<td>8.3</td>
<td>4.1</td>
<td>3.1</td>
<td>11.1</td>
<td>12</td>
<td>16.7</td>
</tr>
<tr>
<td>Range</td>
<td>0-20</td>
<td>2-31</td>
<td></td>
<td>6-28</td>
<td></td>
<td>0-26</td>
</tr>
<tr>
<td>Percent work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>related</td>
<td>38.3%</td>
<td>24.8%</td>
<td>55%</td>
<td>58%</td>
<td>54.4%</td>
<td>69%</td>
</tr>
<tr>
<td>Population type</td>
<td>General</td>
<td>Urban</td>
<td>Rural</td>
<td>Professi-</td>
<td>Extn</td>
<td>Extn</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>onal</td>
<td>Agents</td>
<td>Officers</td>
</tr>
</tbody>
</table>

The major difference between the results of this study and the others shown is the higher percentage (69%) of the projects which were work related. This was even more marked within the study comparing dairy farmers with the urban group of Stage Two. (69% cf 37%)
In all other respects there was no reason to believe that dairy farmers were significantly different from a range of other populations previously studied. In short, dairy farmers are an active group of adult learners.

Due to changing levels of interviewing skill no valid comparison can be drawn between the Australian and New Zealand populations.

Two case illustrations from Stage Four are used to show the "process" obtained from the technique being developed to elicit information about dairy farmers' major learning projects. Respondent U, whose project title was "First farm purchase", and Respondent W, whose project related to "Applying for a larger sharemilking job", were chosen as illustrations for several reasons:

1. Both "used" the same extension officer, however they used him in differing ways.

2. Respondent U had a clearly cyclic pattern to his use of people i.e. paid experts, intimates, acquaintances intimates in that order.

3. Respondent W's use of his wife (intimate) illustrates the important role an intimate plays for most learners.

4. A pattern of people usage started to show with these respondents i.e. paid experts were used for their information, acquaintances for information also but particularly for validation or confirmation of opinions obtained earlier and intimates (perhaps to seek more information also) to seek support, look for judgement and a "checking the evidence" role.
The respondents' wives were in all cases farming partner (In N.Z., this is the norm, i.e. 50/50 farming partnerships between husband and wife in the dairy industry) and their contribution to the interview was invaluable. In some cases, the question as to who finally made the decision to proceed with a particular project or aspect of a project is a very valid one i.e. was it husband or wife. The researcher assumed the prime learner and decision maker to be the husband in all cases, for the purposes of the research programme. However, the researcher wished to acknowledge the major contribution of the farmers' wives to the learning efforts of their respective husbands and to the farm management decision making on their dairy farms.
**TABLE 46**

**RESPONDENT U \t CASE ILLUSTRATION**

**GENERAL DATA**

Male, 35-39 years old, married, 15 years formal education, farm owner, a dairy farm discussion group member.

**FARM DATA**

<table>
<thead>
<tr>
<th>Details</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hectares</td>
<td>38</td>
</tr>
<tr>
<td>Milkfat</td>
<td>16,680 Kgs</td>
</tr>
<tr>
<td>Milkfat/cow</td>
<td>140 Kg</td>
</tr>
<tr>
<td>Cows</td>
<td>119</td>
</tr>
<tr>
<td>Season</td>
<td>1979-80</td>
</tr>
<tr>
<td>Stocking rate</td>
<td>439 Kg/m</td>
</tr>
<tr>
<td>Milking cows/hectare</td>
<td>3.13</td>
</tr>
</tbody>
</table>

stocking rate - 3.13 milking cows/hectare
PROJECT DESCRIPTION

Title: First Farm Purchase

SEQUENCE

1. Discussed farm sale with vendor (boss)
2. Looked at alternative sharemilking jobs
3. Serious consideration to leave farming, frustrated at progress and opportunities and at cost
4. Decision made to stay farming
5. Discussion with extension officer (NZDB CO.)
6. Finance required - budget and loan application
7. Loan application made
8. References sought and obtained
9. Discussion with rural bank
10. Rural bank decline loan
11. Approach local MP for help - nationality papers
12. Inspection by rural bank appraiser
13. Personal loan failed
14. Deposit required and obtained
15. Stock sold but?
16. Bridging finance required
17. Rural bank approves loan
18. Accept offer
19. Decision and action - buy farm

This Learning Project contained
- seven cyclic petals (see Figure 12)
- using an estimated twenty different people.
The farmer classified these people as follows:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paid expert</td>
<td>11</td>
</tr>
<tr>
<td>Acquaintance expert</td>
<td>4</td>
</tr>
<tr>
<td>Intimate expert</td>
<td>2</td>
</tr>
<tr>
<td>Intimate non-expert</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
</tr>
</tbody>
</table>

Whose occupations were:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td>2</td>
</tr>
<tr>
<td>Farmers/Farming Neighbours</td>
<td>6</td>
</tr>
<tr>
<td>Extension Officers - NZDB</td>
<td>2</td>
</tr>
<tr>
<td>- MAF/FAO</td>
<td></td>
</tr>
<tr>
<td>- Other</td>
<td></td>
</tr>
<tr>
<td>Local Authority</td>
<td>1</td>
</tr>
<tr>
<td>Lending Institutions including</td>
<td></td>
</tr>
<tr>
<td>Rural Bank</td>
<td>4</td>
</tr>
<tr>
<td>Professionals - Accountant, M.P., J.P.</td>
<td>3</td>
</tr>
<tr>
<td>Local Business - Stock Agents</td>
<td>2</td>
</tr>
</tbody>
</table>
Most important to least important people - Respondent's Ranking

A. Assistance Given - Not More Specific

<table>
<thead>
<tr>
<th>Intimate non-expert</th>
<th>Wife</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intimate expert</td>
<td>NZDB CO</td>
</tr>
<tr>
<td>Intimate non-expert</td>
<td>Farmer-vendor</td>
</tr>
<tr>
<td>Acquaintance experts</td>
<td>Neighbouring farmers</td>
</tr>
<tr>
<td>Intimate expert</td>
<td>Justice of the peace (JP)</td>
</tr>
<tr>
<td>Paid expert</td>
<td>Member of Parliament</td>
</tr>
<tr>
<td>Paid expert</td>
<td>Lawyer</td>
</tr>
<tr>
<td>Acquaintance Expert</td>
<td>Insurance Co. Manager</td>
</tr>
<tr>
<td>Paid expert</td>
<td>Bank Manager</td>
</tr>
<tr>
<td>Acquaintance expert</td>
<td>Accountant</td>
</tr>
<tr>
<td>Paid expert</td>
<td>Stock agent</td>
</tr>
</tbody>
</table>

INTERVIEW DISCUSSION

It became apparent to the writer on drawing up the Petal diagram for this interview that there was a cyclic nature to the convergence patterns of the learner. There were seven distinct cycles, whereby the learner collected information, sought validation, looked for assistance and support in making a decision and finally, making the decision and taking action. If the information and the learners' interpretation of that information were perceived to be correct or accurate or the best available, then the project proceeded. If however, the information was not verified, the process was repeated or an alternate source of information sought.

The paid experts (people not well known by the learner) were 'used' or contacted for their information or expertise e.g. The Rural Bank farm
The appraiser was classified as a paid expert. The respondent described his use of the appraiser:

"He........I can't remember his name....rang up, after our application was received, for an appointment. When he arrived he measured the house and put a value on it. Walked the farm, looked at the herd, drew up a farm map asked what plans we had....took the information back to the Rural Bank, said he'd go through it and send it all down to Wellington."

A local stock agent (paid expert) was also contacted for information.

"We had to get a market value for our herd, now I don't altogether trust stock agents but they're the best sort of person with that up to date knowledge of stock values."

Acquaintances are also sought for their expert information but there's more personal involvement with these people as they are respected for their opinions. This respondent required three references to assist his farm loan application.

"We asked two of our past employers, Bernie and Steve, both great bosses and very prominent farmers. They were totally behind us and were of the opinion that it was the right farm to buy. Getting references from such good industry names and knowing that they really believed in us was very reassuring."

The intimate has a key role, one of support and trust. Reference has already been made to the Consulting officer (NZDB - extension officer) whom these people classified as an intimate expert. The following quotation describes his role as an intimate.
"When we got married we had nothing and both of us came from the city with no family encouragement to go farming. The Dairy Board Consulting Officers have been our main backbone all the time we've been farming. Mike became a very close friend, almost a brother"  
(farmer)

"I'd have him as a brother, any day!"  
(wife)

The project started with an opportunity to purchase the farm they were sharemilking on - the learning process involved looking at alternatives, seeking information preparing financial and personal statements, negotiating loans, completion of nationality papers, sales of stock, comparing alternatives and making decisions. In dealing with an establishment and its rule book (Rural Bank) many difficulties were experienced. Dealing with people from lending institutions, professions, business and family enabled these people to negotiate a satisfactory conclusion and allow the project to proceed.

The critical points within the learning project were:

* the owner's decision to sell
* the learners decision to stay in farming
* the NZDB CO encouragement and support
* change of nationality
* realization that the level of assets was sufficient to gain a Rural Bank loan.
The Extension officer (NZDB CO) was classified by the learner as an INTIMATE EXPERT. In that role he supplied expert assistance with technical and financial information, but most of the comments from the learner related more to his encouragement and support rather than the information given. For example: concerning the learner's indecision whether or not they should move to town, the Consulting officer's reaction was

"You're mad, absolutely mad! You've come so far and done so well, don't go and chuck it in, other farmers have bought farms with less!"

And were they too old to apply for a loan?

"Don't be so stupid, get on into it!"

Referring to how the Consulting officer worked with and assisted them, the farmer's wife said:

"Poor Mike, I don't know how he found the time.....he got such an ear bashing, we knew he was under work pressure so he really went out of his way to help us. For some reason all of the Consulting officers we've had contact with, all seem to be like that."

Much of this discussion about the role of the INTIMATES arose from comments made by the learner and his wife regarding the pressures of indecision or depression and disappointment of apparent failure and the frustration of delays and bureaucratic detail requirements. Comments such as:

"We became very depressed, as low as I've ever been.....the outlook was so pessimistic yet at the time our townie friends all seemed to be booming"

(farmer's wife)
"It was a nerve-racking day, I felt quite rung out.....my attitude was all wrong, I was horribly bloody.....depressed."

(farmer)

"Then we had hassles with our tax, we wondered what was next, what had we let ourselves in for.......we were feeling so very flat - there was no joy whatsoever!"

But once it was all over and the decision made,

"I can't believe it, this year's been very relaxed, it's marvellous, you've made your decision and thats that, but you know where you are.......looking back I wonder how we survived, do you know we've both put on weight, about half a stone. Which I think is quite telling."

The risk of decision making, the learning experience, appeared to be accompanied by considerable mental and physical stress for both the learner and his wife and family. The researcher introduced some of Dr. Kubler-Ross's (1973) thinking about stress and life crisis. In this way the researcher was able to contribute to the respondent and to the respondent's wife, a better understanding of what had happened to them during the stressful period of the learning project.
FIGURE 13 RESPONDENT U
Occupational Groups
PROJECT: FIRST FARM PURCHASE

PETAL DIAGRAM

Key Appendix B
FIGURE 14
RESPONDENT U
Stages of Project

PROJECT:
FIRST FARM PURCHASE
FIGURE 15  RESPONDENT W
Occupational Group
PROJECT: APPLYING FOR A LARGER SHARE MILKING JOB

PETAL DIAGRAM

EXTENSION OFFICER
COMMON TO RESPONDENT W & U (COMPARISON OF POSITION & USE)

Key Appendix B
STAGE FIVE : PROCEDURE

LOCATION - Manawatu - New Zealand

INTRODUCTION

Stage Five was planned to be the "final run" for the research study. Through Stages One to Four the researcher's ideas and methodology had changed and been moulded into a presentable and workable final model. At stage One the task appeared enormous and the options endless. The method on reflection was limited by its format, which in turn limited and shaped the answers and information generated by the interview. The researcher was inexperienced at asking questions and a poor listener, hence he missed many opportunities offered by the respondents.

The method of interviewing evolved to a non-directive questioning technique (using counselling skills) with a pre-planned routine. The conversation enabled the respondent and the researcher to develop the interview, rather than the pre-written cards and questions dictating the resultant information. The result allowed abstract ideas to appear rather than concrete facts alone. In this way the interview became in itself a learning experience for both parties and much more fruitful because of it. The researcher wanted to get much closer to the "why" and the "how" rather than simply the "what" of adult learning.
The Rep-grid (Kelly 1951) was sent to the University of Melbourne for computing. On receiving the computerised Rep-grid print-outs, the researcher returned to each participant. Each respondent worked through his Rep-grid print-out with the researcher, studied his interview work sheet and Petal diagram.

The fourteen interviews averaged two and a half hours on the first visit and a further one hour of discussion at the second. The respondents were very involved in the interview and often totally absorbed in learning more about themselves. The interviews themselves became an exciting learning experience about people and their eagerness to learn about their own learning behaviour and how they used the people about them.

Each of the fourteen final respondents have been sent a summary paper of the study, to complete what the researcher sees as an important component of scientific research i.e. total involvement of all participants, and results circulated to everyone.

Prime aims of interview were

1. To share with the respondent a better understanding of his learning experiences and the factors affecting that learning.

2. To obtain an understanding of how the learner used other people to assist him in his learning efforts.

3. To obtain specific information on how he used and what factors affected his use of extension officers when they were classified as paid experts, acquaintance experts and intimate experts.
4. To obtain information on factors affecting the use of intimates (ranked as the most important people by all of the respondents.)

5. To examine the importance of "the social distance from self" and "the degree of expertise" as factors affecting the learner's use of people.

6. To examine the "stress" of a learning project on the adult learner.

7. To probe for key or higher-order constructions that were having major influences on the process of learning.

8. To ensure that the respondent gained a better understanding of himself and his relationship with other people as a result of the interview.
RESULTS - STAGE FIVE

In presenting the results, a summary of the demographic data and titles of the major learning project discussed is given for each of the fourteen respondents. Six case illustrations are described in more detail, with the results of their Petal diagrams and Rep-grids given.

TABLE 47:

DEMOGRAPHIC DATA

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Age</th>
<th>Occupation</th>
<th>Family Status</th>
<th>Formal Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 2</td>
<td>25-29</td>
<td>50/50 S/M</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>* 3</td>
<td>50-54</td>
<td>Owner</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 6</td>
<td>30-34</td>
<td>50/50 S/M</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 11</td>
<td>25-29</td>
<td>Owner</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>* 12</td>
<td>20-24</td>
<td>50/50 S/M</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* 14</td>
<td>25-29</td>
<td>Owner and S/M</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

All respondents worked with the same New Zealand Dairy Board Consulting officer and all belonged to their local farm discussion group. All respondents were married.

* Selected as case illustrations.
TABLE 48:

**LEARNING PROJECT TITLES**

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Title</th>
<th>Number of People</th>
<th>Approx Gross cost (NZ$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Increasing size of cowshed</td>
<td>36</td>
<td>$30,000</td>
</tr>
<tr>
<td>2*</td>
<td>Farm Subdivision</td>
<td>20</td>
<td>$10,000</td>
</tr>
<tr>
<td>3*</td>
<td>Purchase of additional land/cowshed construction</td>
<td>80</td>
<td>$250,000</td>
</tr>
<tr>
<td>4</td>
<td>Obtaining large sharemilking job</td>
<td>60</td>
<td>$60,000</td>
</tr>
<tr>
<td>5</td>
<td>Increase size of cowshed/farm development</td>
<td>26</td>
<td>$26,000</td>
</tr>
<tr>
<td>6*</td>
<td>Obtain first 50/50 sharemilking job</td>
<td>33</td>
<td>$70,000</td>
</tr>
<tr>
<td>7</td>
<td>Purchasing additional cows for herd</td>
<td>24</td>
<td>$6,000</td>
</tr>
<tr>
<td>8</td>
<td>Major increase in farm production</td>
<td>28</td>
<td>$5,000</td>
</tr>
<tr>
<td>9</td>
<td>Farm drainage</td>
<td>35</td>
<td>$15,000</td>
</tr>
<tr>
<td>10</td>
<td>First farm purchase and drainage</td>
<td>50</td>
<td>$130,000</td>
</tr>
<tr>
<td>11*</td>
<td>Leasing farm and moving to city</td>
<td>61</td>
<td>$150,000</td>
</tr>
<tr>
<td>12*</td>
<td>Obtaining first 50/50 sharemilking job</td>
<td>30</td>
<td>$40,000</td>
</tr>
<tr>
<td>13</td>
<td>First farm purchase and drainage</td>
<td>65</td>
<td>$140,000</td>
</tr>
<tr>
<td>*14</td>
<td>Purchase land block</td>
<td>26</td>
<td>$60,000</td>
</tr>
</tbody>
</table>

**TOTAL NUMBER OF PEOPLE 574**

**MEAN NUMBER OF PEOPLE/PROJECT**

\[(N=14) = 41\]

Sample of six case illustrations used as examples

**MEAN NUMBER OF PEOPLE/PROJECT**

\[(N=6) = 42\]
In analysing (linear regression) the relationship between the number of people used in the project, against the approximate gross cost of the project as estimated by the learner, it was found that the relationship was highly significant (F0.05) (RSQ) 79.8 Slope 1:3.441

TABLE 49 : PEOPLE/COST/NUMBER OF PETALS

Stage 5

<table>
<thead>
<tr>
<th>Number of People</th>
<th>$ Cost</th>
<th>Number of People</th>
<th>Petals</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>30,000</td>
<td>20</td>
<td>11</td>
</tr>
<tr>
<td>20</td>
<td>10,000</td>
<td>80</td>
<td>25</td>
</tr>
<tr>
<td>80</td>
<td>250,000</td>
<td>33</td>
<td>18</td>
</tr>
<tr>
<td>60</td>
<td>60,000</td>
<td>61</td>
<td>21</td>
</tr>
<tr>
<td>26</td>
<td>20,000</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>33</td>
<td>70,000</td>
<td>26</td>
<td>11</td>
</tr>
<tr>
<td>24</td>
<td>6,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>5,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>15,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>130,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>150,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>40,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>140,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>60,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>People used</td>
<td>Total</td>
<td>Percentage</td>
<td>Average</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-------</td>
<td>------------</td>
<td>---------</td>
</tr>
<tr>
<td>Groups/chance acquaintances (Not all projects)</td>
<td>574</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>Paid experts/non experts</td>
<td>195</td>
<td>34%</td>
<td>22</td>
</tr>
<tr>
<td>Acquaintances</td>
<td>132</td>
<td>23%</td>
<td>9</td>
</tr>
<tr>
<td>Intimates</td>
<td>52</td>
<td>9%</td>
<td>4</td>
</tr>
<tr>
<td>Paid experts Experts</td>
<td>157</td>
<td>54%</td>
<td>11</td>
</tr>
<tr>
<td>Acquaintance experts only</td>
<td>85</td>
<td>29%</td>
<td>6</td>
</tr>
<tr>
<td>Intimate experts (N=292)</td>
<td>50</td>
<td>17%</td>
<td>4</td>
</tr>
<tr>
<td>Family</td>
<td>57</td>
<td>10%</td>
<td>4</td>
</tr>
<tr>
<td>Farmers</td>
<td>283</td>
<td>49%</td>
<td>20</td>
</tr>
<tr>
<td>Extension officers NZDB</td>
<td>18</td>
<td>3%</td>
<td>1</td>
</tr>
<tr>
<td>MAF/FAO</td>
<td>7</td>
<td>1%</td>
<td>1</td>
</tr>
<tr>
<td>Others</td>
<td>8</td>
<td>1%</td>
<td>1</td>
</tr>
<tr>
<td>Contractors/local business</td>
<td>51</td>
<td>9%</td>
<td>4</td>
</tr>
<tr>
<td>Government dept/local authority</td>
<td>21</td>
<td>4%</td>
<td>2</td>
</tr>
<tr>
<td>Banks/lending institutions</td>
<td>46</td>
<td>8%</td>
<td>3</td>
</tr>
<tr>
<td>Professionals</td>
<td>41</td>
<td>7%</td>
<td>3</td>
</tr>
<tr>
<td>Others</td>
<td>42</td>
<td>7%</td>
<td>3</td>
</tr>
</tbody>
</table>
### TABLE 51:

**EXTENSION OFFICERS WERE CLASSIFIED (N=13)**

<table>
<thead>
<tr>
<th>Classification</th>
<th>NZDB*</th>
<th>NZDB MAF/FAO</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intimate Expert</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Acquaintance Expert</td>
<td>12</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Paid Expert</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Paid Non-expert</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chance Acquaintance</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NZDB* relates to Extension officers who co-operated with the study and who are common to all interviews.

Therefore in summary 9% were classified Intimate expert, 49% Acquaintance expert, 33% Paid expert, 6% Paid non-expert, 3% Chance acquaintance.
TABLE 52:

**SUMMARY FROM STAGES III, IV, AND V.**

<table>
<thead>
<tr>
<th>People use</th>
<th>Stage</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>Total</th>
<th>%</th>
<th>Ave.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups/Chance acquaintances</td>
<td></td>
<td>160</td>
<td>574</td>
<td>946</td>
<td></td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Paid Experts/Non Experts</td>
<td></td>
<td>58</td>
<td>515</td>
<td>355</td>
<td></td>
<td>38</td>
<td>13</td>
</tr>
<tr>
<td>Acquaintances</td>
<td></td>
<td>45</td>
<td>132</td>
<td>232</td>
<td></td>
<td>25</td>
<td>8</td>
</tr>
<tr>
<td>Intimates</td>
<td></td>
<td>25</td>
<td>52</td>
<td>90</td>
<td></td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Paid Experts</td>
<td></td>
<td>52</td>
<td>157</td>
<td>309</td>
<td></td>
<td>56</td>
<td>11</td>
</tr>
<tr>
<td>Acquaintance Experts only</td>
<td></td>
<td>38</td>
<td>85</td>
<td>165</td>
<td></td>
<td>30</td>
<td>6</td>
</tr>
<tr>
<td>Intimate Experts</td>
<td></td>
<td>15</td>
<td>50</td>
<td>73</td>
<td></td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Family</td>
<td></td>
<td>21</td>
<td>57</td>
<td>88</td>
<td></td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Farmers</td>
<td></td>
<td>77</td>
<td>283</td>
<td>486</td>
<td></td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Extension Officers NZDB</td>
<td></td>
<td>18</td>
<td>23</td>
<td>23</td>
<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>MAF/FAO</td>
<td></td>
<td>2</td>
<td>7</td>
<td>9</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Dept. AG.VIC.</td>
<td></td>
<td>10</td>
<td>10</td>
<td>10</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td>3</td>
<td>8</td>
<td>12</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Contractors/Local Business</td>
<td></td>
<td>51</td>
<td>100</td>
<td>100</td>
<td></td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Government Depts./Local Authority</td>
<td></td>
<td>21</td>
<td>22</td>
<td>22</td>
<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Banks/Lending Institutions</td>
<td></td>
<td>46</td>
<td>71 *</td>
<td>46</td>
<td></td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Professionals</td>
<td></td>
<td>16</td>
<td>41</td>
<td>77</td>
<td></td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td>42</td>
<td>48</td>
<td>48</td>
<td></td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

Number of Projects = 29 (ie. 29 interviews)

Total number of extension officers/total = 54 = 6% Total
## Table 53:

**Extension Officers (Total N=54)**

<table>
<thead>
<tr>
<th>Classification</th>
<th>N=54 (Overall)</th>
<th>N=23 (NZDB)</th>
<th>N=9 (MAF/FAO)</th>
<th>N=10 (DAV)</th>
<th>N=12 (Others)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PNE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- IE: 5 (9%) 4 (17%) 1 (8.5%)
- AE: 24 (44%) 16 (70%) 11 (30%) 4 (33%)
- PE: 22 (41%) 3 (13%) 6 (67%) 7 (70%) 6 (50%)
- PNE: 2 (4%) 2 (22%)
- C/A: 1 (2%) 1 (8.5%)

153
SUMMARY OF INFORMATION FROM CASE ILLUSTRATIONS

The following tables group together the information obtained about the learning projects, the classification of the people used and their occupational groups.

TABLE 54:

NATURE OF LEARNING PROJECTS (N=6) FROM PETAL DIAGRAMS

<table>
<thead>
<tr>
<th>Respondent No.</th>
<th>2</th>
<th>3</th>
<th>6</th>
<th>11</th>
<th>12</th>
<th>14</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Cyclic Petals</td>
<td>11</td>
<td>25</td>
<td>8</td>
<td>21</td>
<td>25</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>Number of Definite Decision Points</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>10</td>
<td>8</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Total Number of People Used</td>
<td>20</td>
<td>80</td>
<td>33</td>
<td>61</td>
<td>30</td>
<td>26</td>
<td>42</td>
</tr>
</tbody>
</table>

TABLE 55:

LEARNERS CLASSIFICATION OF PEOPLE USED (N=6)

<table>
<thead>
<tr>
<th>Respondent No.</th>
<th>2</th>
<th>3</th>
<th>6</th>
<th>11</th>
<th>12</th>
<th>14</th>
<th>Total</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chance Acquaintance</td>
<td>26(5)</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>13</td>
<td>43</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Self Formed Interest Group</td>
<td>12(1)</td>
<td>20(2)</td>
<td>12(1)</td>
<td>41(1)</td>
<td>15(1)</td>
<td>100</td>
<td>20(1)</td>
<td></td>
</tr>
<tr>
<td>Paid Expert</td>
<td>3</td>
<td>23</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>44</td>
<td>7</td>
</tr>
<tr>
<td>Paid Non-Expert</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>8</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquaintance Expert</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>10</td>
<td>3</td>
<td>2</td>
<td>23</td>
<td>4</td>
</tr>
<tr>
<td>Acquaintance Non-Expert</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Intimate Expert</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>Intimate Non-Expert</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>8</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total People</td>
<td>20</td>
<td>80</td>
<td>33</td>
<td>61</td>
<td>30</td>
<td>26</td>
<td>250</td>
<td></td>
</tr>
</tbody>
</table>
( ) Brackets indicate groups

TABLE 56:

GROUPING THE ABOVE INFORMATION

<table>
<thead>
<tr>
<th>Social Position to Learner</th>
<th>Total</th>
<th>Av. Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups/Chance Acquaintances</td>
<td>143</td>
<td>29</td>
</tr>
<tr>
<td>Paid Expert/Non-Expert</td>
<td>52</td>
<td>10</td>
</tr>
<tr>
<td>Acquaintances</td>
<td>28</td>
<td>5</td>
</tr>
<tr>
<td>Intimates</td>
<td>27</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Precentage of Total</th>
<th>Expert</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups/Chance Acquaintances</td>
<td>NA</td>
<td>57%</td>
</tr>
<tr>
<td>Paid Experts/Non-Experts</td>
<td>51%</td>
<td>21%</td>
</tr>
<tr>
<td>Acquaintances</td>
<td>27%</td>
<td>11%</td>
</tr>
<tr>
<td>Intimates</td>
<td>22%</td>
<td>11%</td>
</tr>
</tbody>
</table>
### TABLE 57:

**PEOPLE'S OCCUPATION**

<table>
<thead>
<tr>
<th>OCCUPATION</th>
<th>2</th>
<th>3</th>
<th>6</th>
<th>11</th>
<th>12</th>
<th>14</th>
<th>Total</th>
<th>%</th>
<th>Ave.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family</strong></td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>18</td>
<td>7%</td>
<td>3</td>
</tr>
<tr>
<td><strong>Farmers</strong></td>
<td>14</td>
<td>36</td>
<td>21</td>
<td>7</td>
<td>20</td>
<td>14</td>
<td>112</td>
<td>45%</td>
<td>19</td>
</tr>
<tr>
<td><strong>Extension Officers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- NZDB</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>3%</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>- MAF/FAO</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
<td>2%</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>- AG College</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- DAO Farms</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>2%</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>- D Instructor</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Other</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Contractors/Local Business</strong></td>
<td>1</td>
<td>16</td>
<td>1</td>
<td>6</td>
<td>24</td>
<td>10%</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Government Dept/Local Authority</strong></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>12</td>
<td>5%</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Banks/Lending Inst</strong></td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>14</td>
<td>6%</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Professionals</strong></td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>14</td>
<td>6%</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Student Class</strong></td>
<td>40</td>
<td>40</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 20 | 80 | 33 | 61 | 30 | 26 | 250 |

**EXTENSION OFFICERS WERE CLASSIFIED (N=18)**

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>NZDB*</th>
<th>NZDB</th>
<th>MAF/FAO</th>
<th>OTHERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intimate Expert</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquaintance Expert</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Paid Expert</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Paid Non-Expert</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chance Acquaintance</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

i.e. 5% Intimate expert, 39% Acquaintance expert, 39% Paid expert, 11% Paid non-expert and 5% Chance Acquaintance.
In graphing out the relationship between the number of people used by the learner and the number of cyclic petals it becomes clear that both are measures of the complexity of the project. (Data from 6 case illustrations)
RESPONDENT NO. 2

TABLE 58:

CASE ILLUSTRATION

GENERAL DATA:

Male, 25-29 years old, married, 15 years formal education, 50/50 sharemilker, a dairy farm discussion group member, does not employ labour - partnership with brother.

FARM DATA:

109 Hectares 210 cows
30,391 Kgs milkfat 1979-80 season (193 cows)
157.47 kg milkfat/cow, 279 kg milkfat/hectare
Stocking rate - 1.93 milking cows/hectare

PROJECT DESCRIPTION:

TITLE - FARM SUBDIVISION

SEQUENCE: 1 Problem identified/idea initiated
2 Discussed idea, alternatives, problems
3 Negotiated alternatives
4 Itemised costs
5 (Planned details
   (Sought opinions

158
6 (Investigated one aspect in more detail
   (Examined "model" solution
7 Sought opinion
8 Gathered further information
9 Discussed information
10 Informed non-decision makers
11 (Made decision
   (Action taken

This learning project contained
   - Eleven cyclic petals (see figure)
   - Using an estimated twenty different people

The farmer classified these people as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self formed interest group</td>
<td>12 (1)</td>
</tr>
<tr>
<td>Paid Expert</td>
<td>3</td>
</tr>
<tr>
<td>Acquaintance Expert</td>
<td>2</td>
</tr>
<tr>
<td>Intimate Expert</td>
<td>1</td>
</tr>
<tr>
<td>Intimate Non-expert</td>
<td>2</td>
</tr>
</tbody>
</table>

20 People

Whose occupations were:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family - farming partners</td>
<td>3</td>
</tr>
<tr>
<td>Farmers / Farming neighbours</td>
<td>14</td>
</tr>
<tr>
<td>Extension Officers - NZDB</td>
<td>1</td>
</tr>
<tr>
<td>- MAF</td>
<td></td>
</tr>
<tr>
<td>- OTHER</td>
<td></td>
</tr>
<tr>
<td>Contractors - Local Business</td>
<td>1</td>
</tr>
<tr>
<td>Government Dept / Local Authority</td>
<td>1</td>
</tr>
</tbody>
</table>

20
Most important to least important people: - Respondent's ranking based on:-

- "Assistance Given Learner (Not Specific)"
- "Good Information"

TABLE 59:

**MOST IMPORTANT TO LEAST IMPORTANT PEOPLE**

(A) "Assistance Given Learner (Not Specific)"

<table>
<thead>
<tr>
<th>Rank</th>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intimate Expert</td>
<td>Brother/Family/Farmer</td>
</tr>
<tr>
<td>2</td>
<td>Acquaintance Expert</td>
<td>Farmer</td>
</tr>
<tr>
<td>3</td>
<td>Self-formed Interest Group</td>
<td>Farmers</td>
</tr>
<tr>
<td>4</td>
<td>Paid Expert</td>
<td>Extension (NZDB)</td>
</tr>
<tr>
<td>5</td>
<td>Paid Expert</td>
<td>Contractors</td>
</tr>
<tr>
<td>6</td>
<td>Intimate Non-expert</td>
<td>Family (Wife)</td>
</tr>
<tr>
<td>7</td>
<td>*Intimate Non-expert</td>
<td>Family (Father)</td>
</tr>
</tbody>
</table>

(B) "Good Information"

<table>
<thead>
<tr>
<th>Rank</th>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intimate Expert</td>
<td>Family (Brother)</td>
</tr>
<tr>
<td>2</td>
<td>Paid Expert</td>
<td>Extension (NZDB)</td>
</tr>
<tr>
<td>3</td>
<td>Self-formed Interest Group</td>
<td>Farmers</td>
</tr>
<tr>
<td>4</td>
<td>Acquaintance Expert</td>
<td>Farmer</td>
</tr>
<tr>
<td>5</td>
<td>Acquaintance Expert</td>
<td>Farmer</td>
</tr>
<tr>
<td>6</td>
<td>Paid Expert</td>
<td>Contractors</td>
</tr>
<tr>
<td>7</td>
<td>Intimate Non-Expert</td>
<td>Family (Wife)</td>
</tr>
</tbody>
</table>
8 Intimate Non-Expert  - Family (Father)

*Father rated as 'obstacle' to project's successful completion rather than having given assistance, ie. rated negative not positive.

INTERVIEW DISCUSSION:

This learning project was the simplest in terms of its cyclic complexity i.e. number of petals. The number of people was small and the overall cost or size of the project was also small, relative to the other respondent's projects.

The farmer (SELF) identified the problem, initiated the idea or solution, then used other people for information, differing opinions, support and judgement, to enable him to make a decision and to take action.

The key person was the respondent's brother, his farming partner (intimate expert).

"The main factor as far as my brother and I were concerned was that we just were not getting the maximum out of the farm - maximum production. We had to streamline the system fullstop ...... there had to be a fair shake up, as far too much time was being wasted as far as I was concerned."

In terms of farm management the respondent and his brother have similar views.

"We could both see the problem and were pretty much in agreement as to what should be done. Perhaps we wondered if our solution was the best possible, we've probably still made a few mistakes which can be modified later."
The respondent's father (intimate non-expert), the owner of the property also held a key position but in a negative way as far as the respondent viewed it. He was a block or obstacle to the project being completed as he had very different ideas from his two sons.

"My father still doesn't go along with it (project) - he can't see any advantage in us re-subdividing ....... which we can see, others can see, everyone can see, BUT DAD .... he's an old timer ....... we won't convince him but we'll just go ahead and do it. He'll moan like hell for a week then shut up, which he does for most things. We've got to bulldoze to get anywhere."

In Respondent No. 2, his father was clearly isolated from the other people included in the grid. Here he described his father (along with the contractors) as:

"Necessary evils, a real hassle. Prefer to do without them - negative group."

Clearly showing the antagonism and ill feeling that had developed between the respondent and his father. The vertical and horizontal components further described his father as

"older, conservative, talk to on different level"

This personality clash and differing "world views" obviously stressed the respondent and increased the complexity of the learning process for in an attempt to convince his father, additional information was obtained, more opinions sought and negotiations entered into. Certainly delaying the completion of the decision making process, but perhaps resulting in a more thorough investigation.

The Extension officer a New Zealand Dairy Board Consulting officer (PAID EXPERT) appears in the sequence of the learning project, near the end.
"By the time we asked him out, we had all but made up our minds — but we were asking did he have any other suggestions or suitable alternatives. We wanted district information about what was common farm paddock sizes. I still remember one comment he made though — 'for godsake get on and do it'."

In this project the Extension officer's main function was to supply useful information and was classified as a PAID EXPERT, primarily because the farmer had not "got to know" him as a person. On the Repgrid the Extension officer appears in the close inner group. The farmer saw him as part of the positive (pro) group, someone who got him thinking, had good ideas, of his own age group. From these positive statements and position on the grid, it appears that the Extension officer contributed successfully to the project and formed a workable personal relationship with the farmer. It is thought important that the farmer has placed the Extension officer and "other farmers" in the same favourable position. i.e. in the "important good ideas" group.
FIGURE 17  RESPONDENT NO. 2
Occupational Groups
PROJECT: FARM SUBDIVISION

PETAL DIAGRAM

Key Appendix B
FIGURE 18 RESPONDENT No. 2
People Classification

PROJECT: FARM SUBDIVISION

PETAL DIAGRAM

Key Appendix B
RESPONDENT No. 3

TABLE 60:

CASE ILLUSTRATION

GENERAL DATA:

Male, 50-54 years old, married, 15 years formal education, farm owner, a Dairy farm discussion group member, employs labour (now on larger property)

FARM DATA:

116.1 Hectares 180 cows
10,000 kg Milkfat 1979-80 season (68 cows)
147 kg Milkfat / cow 166 kg milkfat / hectare
Stocking rate - 1.13 milking cows / hectare

PROJECT DESCRIPTION:

TITLE: Purchase of additional land and cowshed construction

SEQUENCE: 1 (Identified problem - Accountant (Brother)

(Analysis of present position (Financial)

2 Discuss future financial position with Wife
3 Sought information - purchase of land
4 Analysed options - viability (Agricultural College Tutor)
5 Sought opinions on analysis

*6 Second analysis - (NZDB) Consulting Officer

7 Two analyses confirm - discussion
8 (Information = Land Valuation (Govt)
(Information - Land Valuation

(Information on availability of finance

9 Consult intimate expert - Accountant (Brother)
10 Attempt to obtain Rural Bank Finance
11 Discuss failure with wife
12 Obtain vendor finance
13 Information - Bank Manager
14 Contact Marginal lands board - information
15 Worked out details - lawyer
16 Discuss final details - wife - decision
17 Purchase additional stock - vendor
18 Sign for farm - action

Second Part of Project - cowshed construction

*19 Join and complete dairy course - information
   from short live-in course
20 Discussed course details with intimate

*21 (Sought general dairy information - MAF Adviser
    (Contacted Marginal Lands Board - Local
    (Contacted Marginal Lands Board - National
22 Discussed results with intimate
23 Sought information from local farmer - Acquaintance

*24 Joined local farm discussion group (NZDB)
25 Questioned intimate expert - judgement/opinion
26 Questioned farming intimate expert
27 Sought opinion/support from wife
28 Made decision - shed type - herringbone

*29 Contacted Extension Officer (NZDB) Cost information
Discussed with farming intimate expert – obtained costs
- opinions

Obtained design information – MAF (DAO Farms)

Saw some actual shed designs – MAF (Dairy Instructor)

Discussed designs with wife (Intimate non-expert)

Information: – Local Farmers (Unknown to learner)
- Milking machine agents
- Farmers in outside districts (Travel)

Discussed visual appraisal with wife

Contacted Extension Officer (NZDB) – Information/Opinion

Discussed E.O.'s comments with farming intimate experts

Telephoned farmers, outside districts – information

Opinion from Extension Officer on farmer information

Discussed options with farming intimate expert

Drew plans and ideas – Building Contractor

Information on materials – local builder

Discussion on merit of materials – intimate expert

Discussion/judgement made with wife

Made decision – final plans

Submit plans for approval/finance (Lands and Survey Dept.)

Called for tenders – Contractors
- Builders
- Engineers

Check work done on local farm – opinions

Discuss building tenders with wife

Made decision – select builders

Information/action – Dairy Company
- Power Board
- Electrician
- Contractors
- Engineers
- Building Inspector

52 Assist in learning of son — i.e. Building

53 Complement and obtain regular information
from — Builders
- Engineers

54 Support/final decision with wife

55 Appraisal/work completed to learners satisfaction

This learning project contained
- Twenty-five cyclic petals (see figure)
- with six definite decision points
- using an estimated eighty different people

The farmer classified these people as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chance acquaintance</td>
<td>26</td>
</tr>
<tr>
<td>Self formed interest group</td>
<td>20</td>
</tr>
<tr>
<td>Paid Expert</td>
<td>23</td>
</tr>
<tr>
<td>Acquaintance Expert</td>
<td>4</td>
</tr>
<tr>
<td>Acquaintance Non-expert</td>
<td>1</td>
</tr>
<tr>
<td>Intimate Expert</td>
<td>4</td>
</tr>
<tr>
<td>Intimate Non-expert</td>
<td>2</td>
</tr>
</tbody>
</table>

80 People

Whose occupations were:

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family (on the farm) + Accountant</td>
<td>3</td>
</tr>
<tr>
<td>Farmers/farming neighbours</td>
<td>36</td>
</tr>
</tbody>
</table>
Most important people: - The respondent did not rank the people he used, but made the following comments:

"Locals were pretty conservative and insistent on the 'local way of doing things' - there was a prejudice against anything that could be described as revolutionary in design - it was important to obtain good outside information."

and

"If not expert, surround yourself with experts and have enough brains to pick their brains - I try to tap the top brains if I can find them."

and

"A good adviser must be prepared to walk in the other bloke's boots. I think that intimacy is the all important thing, you
build up a relationship, a trust for one another. It's the adviser that has to go the extra mile and the NZ Dairy Board ones seem to work in that manner. They generate a warmth, least David (NZDB CO.) does."

INTERVIEW DISCUSSION:

This learning project was the most complex, with the learner using a very high number of people. Typically, most of these people were farmers, however this respondent was distinctive in his:-

- constant use of intimates
- heavy use of Extension Officers*
- being prepared to use Paid Experts where necessary.

Although the Petal diagram (figure 20) appears very complex, one can see from the "project" sequence that there is a cycle of events being repeated over and over, ie.:

- Collect all available information
- Try to assess/evaluate information
- Seek differing opinions
- Look for support and assistance in making the decision
- Make the decision and take action.

Getting all the available information from PAID EXPERTS was very important to the respondent.

"Everything was very much in the melting pot, everyone that came along, I asked their ideas and tried to glean the information from them."
but the opinions offered by PAID EXPERTS rarely seemed to have much influence.

"He told me, I was too old and decrepit, that I should be learning how to play bowls at my age, rather than taking up dairying. His opinion was strongly against me going into dairying, he brought up all the problems he could think of...

Rural Bank Officer

or

"He was advocating 10 sets of milking cups per man, but I compromised with 9/man. Most of the sheds around here have 6 or 8 per man. Most people around here say you're expecting too much of a man (with 10/man) everything must be going right because if you get problems you really come unstuck."

refer to EXTENSION OFFICER

The respondent's description of one of the listed INTIMATE EXPERTS explains why he relied heavily on these people.

"He's the personal friend of a highly successful farmer, he's the biggest milk producer in the district and has been buying farms ever since I met him, twenty odd years ago. He's got information at his finger tips that most of us haven't got and I trust him completely."

A trusted well known and long standing friend, with a proven performance as a farmer.

During the learning project the farmer, constantly sought his wife's support and counsel. He classified her as a INTIMATE NON-EXPERT with regard to this particular project.
"Of course, she has a financial involvement so any big decision affects her future and that of the children. She's a sounding board and a watch dog - sort of a second chamber that ideas must pass through. I consult her, I feel it's the right thing to do - it keeps her in the picture all the time. She's very supportive of ideas I want to put into action."

Refer to Learners Wife

There is no suggestion that she has any technical expertise regarding land purchase or cowshed construction. The stress and demands of the situation at times almost got too much.

"We dreamt about it and had nightmares ..... we lived with it night and day, it was very difficult because for a long time we couldn't see anything that we really wanted."

quote Farmers Wife

The respondent made much use of Extension officers. Of the NZ Dairy Board Consulting officer he commented:

"..... he acts really as a catalyst, a liaison ..... he was able to clarify my thinking and put up different alternatives far better than the MAF DAO farms ..... even though he's not the so called expert ....."

of the local MAF dairy instructor

"We've got a very good man, really tries to help you but again he was very limited and confined to local experience. His vision extended only to his own district."

Often the information from outside experts is double checked.

"The NZDB Consulting officer said why don't you do ..... I've seen
it done on another farm, why don't you ring him up ....... So I did and I asked him if he was satisfied, 'oh, no!' he said, 'I'm pulling it out next year'. I was glad I'd rung, I dismissed that idea quickly. However, I would say that a good source of information or opinion often suggests alternative sources of information as well as alternatives of his own ..... You put confidence in those you know, in that they know you personally - but to get an unbiased opinion you go to someone who doesn't know you, then you match them both up."

At times lack of information frustrated and annoyed the respondent, especially if he believed that a particular source of information should have certain information.

"Who is the expert, who really is the authority? (respondent pleaded) I felt very disappointed in the MAF, they were barely helpful - their information was very limited and they wouldn't or couldn't come out to the farm to have a look. They couldn't clarify my thinking and they never came up with a design for me which is what I thought their job was ..... they really weren't any help at all. Isn't there any interchange of ideas between offices - why don't our local people know what's happening elsewhere?"

At other times good information was not communicated in a usable form as far as the learner was concerned, even though the idea itself was communicated.

"He (NZDB Consulting Officer) scratched in the dust; a big circle there, something there, a race there and an outlet here ..... but nothing you could take to a draughtsman and say look here is my basic idea."

The respondent also questioned the value of local discussion groups.
"I don't go by local opinion too much, it can be very limited ..... at discussion groups there were about as many ideas as there were farmers ..... what's the basis of these ideas, how factual are they? Mind you seeing an idea actually work is excellent."

REPGRID

The REPGRID for Respondent No. 3 is interesting in that it clearly separates the Extension officers. The "technical man only" officer is distanced from the two who are included in the "my local experts group". To be really effective it seems the Extension officers have to be included in the "inner group", that includes either self or ideal self, farmers wife or other close intimate experts.

The farmer has also separated SELF and WIFE from IDEAL SELF, which is in with "my local experts". At the time of doing the grid the learner definitely saw a (experience success, progressive) gap between himself and those with whom he had respect.

The VENDOR shows as being clearly "having a business relationship only with the learner (SELF)". He's seen as not really being known to the learner even though he was a neighbour, as not being progressive and inexperienced.

The isolated Extension officer may well be like his colleagues but this particular farmer simply didn't get to know him or form a very strong personal relationship that enabled trust to be built up.
FIGURE 20  RESPONDENT No. 3
People Classification

PROJECT: PURCHASE OF ADDITIONAL LAND
AND COWSHED CONSTRUCTION

PETAL DIAGRAM

Key Appendix B
FIGURE 21  RESPONDENT No. 3
Occupational Groups

PROJECT: PURCHASE OF ADDITIONAL LAND
AND COWSHELD CONSTRUCTION

PETAL DIAGRAM

Key Appendix B
FIGURE 22

RESPONDENT No. 3

REPGRID
TABLE 61:

CASE ILLUSTRATION

GENERAL DATA:
Male, 30-34 years old, married, 10 years formal education, 50/50 sharemilker. A Dairy Farm Discussion Group Member. Employs labour.

FARM DATA:
85 Hectares 230 cows
1980-81 Season (First year)

PROJECT DESCRIPTION:
TITLE: OBTAIN FIRST 50/50 SHAREMILKING JOB

SEQUENCE: 1 Self Analysis - "In a rut"
Discussion with wife
Made decision - go farming
2 Sought advice/information from farmer
(Family - brother-in-law)
3 Helped to get job - sister
4 Accept job at Wairoa
5 Discussed job and progress with wife
6 Learned farming skills from neighbouring friend
7 Row with boss
8 Asked sister to help find 50/50 sharemilking job
9 Applied for job (1) - Rotorua
10 Discussed job with wife
11 Sought financial information - MAF Rotorua
12 Discussed viability with sister
   - information/support
13 Sought information job (2) - Reporoa
14 Discussed financial position with wife
   Made decision - sold house, Gisborne
15 Sought financial/job information - Rural Bank,
   Gisborne. Answered dozens of job advertisements
16 Asked for help - neighbouring friend,
   advertised in newspaper
17 Reply and offer of job
18 Travelled with wife to view job and finance
   proposition
19 Sought budget information - MAF Wairoa
   Sought budget information - MAF Hastings
   Sought budget information/procedure - Rural Bank,
   Palmerston North
20 Attempted own financial budget with wife
21 Information - Accountant - Vendor finance
   Discussion Boss and Accountant - sharemilking
   agreement
22 Applied for finance Rural Bank - Palmerston North
23 Resigned from farm wages job - Wairoa
24 Farm Appraisal/Information - Rural Bank
25 Notified of loan approval - S/M Boss
26 Made decision with wife - accept loan and job
27 Notified farm wages boss
28 Contacted lawyer - signing up/information
29 Shift to farm with family - Action
30 New Contact/Information - Bank Manager
31 Employed young boy to work on farm
32 We fired labour unit - readvertised job
33 Employed inexperienced man (Acquaintance Non-expert)
34 Sought support from my wife - both of us under stress
35 Regional Officer (L.I.A.) made unsolicited first visit
   - information regarding A.B.
   - information/contact Extension Officer
*36 Extension Officer (NZDB CO) all day visit
   - information
37 Discussions/support with wife
*38 Joined local farm discussion group (NZDB CO)
39 Sought information/opinions from one farmer in group
40 Intimate discussion with my wife - we need financial help
*41 Sought information/opinion/support from
   Extension Officer (NZDB CO)
42 Assessment of progress/support - wife
43 Made decision - stay with sharemilking and
   progress forward

This learning project contained
   eighteen cyclic petals (see figure 23)
   with six definite decision points
   using an estimated thirty three different people

The farmer classified these people as follows:
<table>
<thead>
<tr>
<th>Role</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chance acquaintance (Non-expert)</td>
<td>1</td>
</tr>
<tr>
<td>Self formed interest group</td>
<td>12 (1)</td>
</tr>
<tr>
<td>Paid Expert</td>
<td>17</td>
</tr>
<tr>
<td>Paid Non-expert</td>
<td>5</td>
</tr>
<tr>
<td>Acquaintance Expert</td>
<td>2</td>
</tr>
<tr>
<td>Acquaintance Non-expert</td>
<td>1</td>
</tr>
<tr>
<td>Intimate Expert</td>
<td>5</td>
</tr>
</tbody>
</table>

33 People

Whose occupations were:

- Family (Farmers) 3
- Farmers/Farming neighbours 21
- Extension Officers - NZDB 1
  - MAF/FAO 3
  - Other -
- Contractors - Local Business 1
- Government Dept/Local Authority -
- Bank Managers/Lending Institutions (including Rural Bank) 2
- Professionals - Accountants Lawyers 2

33 People

Most important to least important people – the respondent ranked

the people according to USEFUL INFORMATION and HELPFULNESS re successful completion of project:

(A) "Useful Information"

1. Acquaintance Expert - NZDB CO
INTERVIEW DISCUSSION

This learning project completed by Respondent No. 6, was distinctive for:

- the learners use of his wife (INTIMATE EXPERT)
- the time and added complexity caused by the number of people contacted who had "poor quality information".
- the successful and quick completion of the project once
good information was obtained
- the stress the learner (and his wife) suffered during
  the learning project

The learner and his wife (INTIMATE EXPERT) started into farming, both
being very inexperienced and short of finance.

"We were both pretty green when we started but I was in a real rut
in my job, my wife encouraged the change ..... she saw it as a
challenge too. I'm the excitable one, my wife checks everything
before I race off in some crazy direction."

and related to the stress

"We both got physically very tired, but early on the real stress
was caused by it going on and on ..... with no obvious solution.
We just couldn't get or find people who were of any real help.
Some of the advice was out of date and looking back, obviously bad
news."

Once they got to the farm it didn't improve much

"The hopeless labour started it ..... you had to ask him to do
everything and then check everything ..... I lost my cool one
night and I would have happily knocked his bloody block off!
Every night, it was home late, absolutely buggered and into the
sherry bottle - there was a real chance of us becoming
alcoholics!"

Their relationship with their new boss deteriorated and this didn't help.

"He treated us like 'shovel men', the real bottom rung ..... he
seemed to want to pull against us, he wasn't helpful. I think he
resented us and his own retirement."

Help arrived in the form of the Extension Officer (NZDB CO) who had been
sent to the farm after a Regional Officer from the Livestock Improvement Association had made an unsolicited first visit to the new sharemilkers who were obviously struggling. The Regional Officer suggested the Consulting Officer could call and talk over their problems. He was made very welcome.

"He (NZDB CO) must have wondered what he'd struck ..... we just talked and talked and talked ..... we got it all off our chest. We just didn't know they existed. We went first to the MAF, it seemed the obvious place for someone who didn't know ..... but we'd never heard of CO's ..... why didn't the Dairy Company Manager tell us, or the Rural Bank ..... we now know the names are in the "Dairy Exporter" but someone who's starting doesn't get the magazine, do they?"

**REPGRID:**

The "close contact working group" included; SELF, IDEAL SELF, FARMING FRIEND, EXTENSION OFFICER (NZDB) and the learner's WIFE. In close vicinity to this inner group, was the "finance" group, which contained the Rural Bank and the "practical farmer" group, however distant was the "poor information" (MAF) and the sharemilking boss who the learner didn't get on with. The main construct descriptions appear to be: -

- With it (new ideas) v out of date
- and helpful v pulling against us
- younger v older

During the interview the respondent made many references to "poor information", "didn't have a clue", "out of date", "non-expert", "wont keep up". The repgrid separates out his boss and the MAF farm advisers, mainly
on the basis of poor 'quality' information.
FIGURE 23  RESPONDENT No. 6
People Classification
PROJECT: OBTAIN FIRST 50/50 SHAREMILKING JOB

PETAL DIAGRAM

Key Appendix B
FIGURE 24  RESPONDENT No. 6
Occupational Groups

PETAL DIAGRAM

Key Appendix B
FIGURE 25  RESPONDENT No. 25

REPGRID

IBM v.d. (12

out of date
knowledge lacking
the other side

helping younger
with innovative new ideas helpful

M.A.F.

"M.A.F."

N.Z.D.B. CO.

Self

FARMER Friend

FARMER

MARRIED

Financial

Rural Bank

Wife

Boss
RESPONDENT No. 11

TABLE 62:

CASE ILLUSTRATION

GENERAL DATA:

Male, 25-29 years old, Married, 11 years formal education, farm owner, Had been a Dairy farm discussion group member, has now leased farm and is now living in the city.

FARM DATA:

54.6 Hectares 130 cows
17,250 Kgs Milkfat 1978-79 Season
133 Kg Milkfat/cow 316 Kg Milkfat/Hectare
Stocking rate 2.38 Milking cows/Hectare

PROJECT DESCRIPTION:

TITLE: LEASING FARM AND MOVING TO CITY

SEQUENCE: 1 Discontented - under stress/tired
   Discussed one of the causes with wife
2 Visited by University lecturer plus student class
   - Budget exercise on spending needs
3 Increased debt - built new cowshed
4 Ill health and father died - support (wife)
5 Discussion and decision to increase cow numbers (MAF/FAO)
6 Visit medical doctor - depression
7 Discussed possibilities of leaving farm (Wife)
8 Sought information/opinion from Accountant
9 Discussed rough budget/options with wife
10 Approached young person to manage farm - temporary
11 Consulted farming friend - looking for support/ideas
12 Discussed plans with neighbour's wife
13 Looked for possible sharemilkers - wife
14 Approached by neighbour with proposal to lease
15 Discussed proposal with wife
16 Went back to neighbours agreeing in principle
17 Contacted Extension Officer (NZDB) - information
   Contacted Extension Officer (MAF) - information
18 Made decision - information (MAF) - lease farm
19 Approached by another neighbour with proposal
20 Turned second offer down - (Wife)
21 Drew up agreement with lawyer
22 Discussed alterations with neighbour's father
23 Made changes with lawyer
24 Signed with (Neighbour's father
   (Neighbour's wife
   (Neighbour
25 Looked for job in city - wife
26 Helped to find a job - (Acquaintance)
27 Accepted job
28 Contacted land agents - information
29 Purchased and moved into city
30 Contacted Extension Officer (NZDB - unhappy/doubts
   - sought information/opinions
31 Discussed unhappiness - support from wife
32 Resigned from job - manager (1)
33 Discussed alternatives - wife
34 Discussed jobs with neighbour (city) - casual
35 Introduced to manager (2) - job offered
36 Discussed job change - wife
37 Made decision - changed job

This learning project contained
- twenty one cyclic petals (see figure 26)
- with ten definite decision points
- using an estimated sixty one different people

The farmer classified these people as follows:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self formed interest group</td>
<td>41 (1)</td>
</tr>
<tr>
<td>Chance acquaintance</td>
<td>1</td>
</tr>
<tr>
<td>Paid Expert</td>
<td>4</td>
</tr>
<tr>
<td>Acquaintance Expert</td>
<td>10</td>
</tr>
<tr>
<td>Acquaintance Non-expert</td>
<td>1</td>
</tr>
<tr>
<td>Intimate Expert</td>
<td>4</td>
</tr>
</tbody>
</table>

61 People

Whose occupations were:

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td>1</td>
</tr>
<tr>
<td>Farmers / Farming neighbours</td>
<td>7</td>
</tr>
<tr>
<td>Extension Officers NZDB CO</td>
<td>1</td>
</tr>
<tr>
<td>MAF/FAO</td>
<td>1</td>
</tr>
<tr>
<td>Others</td>
<td>-</td>
</tr>
</tbody>
</table>
Contractors - Local Business  6
Government Dept / Local Authority  -
Professionals - Lawyers/Accountants  4
Bank Manager  1
Student class  40

61 People

Most important to least important people:- Respondent's ranking based on:

- "Helped me most in a practical way"
- "Those I trust"
- "The best or most relevant advice"

(A) "Helped me most in a practical way"

1. Intimate Expert  - Wife
2. Acquaintance Expert  - Accountant
3. Paid Expert  - Lawyer
4. Acquaintance Expert  - Extension Officer (NZDB)
5. Intimate Expert  - Farming neighbour
6. Paid Expert  - Bank Manager
7. Paid Expert  - Doctor
8. Acquaintance Expert  - Extension Officer (MAF)

(B) "Those I Trust"

1. Intimate Expert  - Wife
2. Intimate Expert  - Farming friend
3. Intimate Expert  - Neighbour's father
4. Intimate Expert  - Neighbour - farmer
INTERVIEW DISCUSSION

This interview was interesting, in that the learner's wife almost dominated the discussion. On the Petal diagram (see figure 26) and the additional information given by the learner, his wife (INTIMATE EXPERT) was the key person. At times it was difficult to decide who made the decisions - the learner or the learner's wife.

The learner made it quite clear that this project was as a consequence of a situation that had created much personal stress and worry. The stress continued throughout the project and the learner was still on medication at the time of the interview (one month after the completion of the project).
"Trust in other people" was a critical determinant in the learner's use or non-use of another person. However, they took advice from their Accountant, the MAP/FAO and a group of University students that led to decisions which on reflection, at the time of the interview, the learner/learner's wife considered regretful. Information was given by these people without checking out the farmer's view point and social/medical consequences that may have, in fact did follow such a course of action.

**Stress:** Personal stress was a factor in most of the respondents' learning projects but it was a major component in this learning project. Stress, discontentment, feeling down, unhappiness and perhaps depression caused this project to be initiated and influenced the decision making process, the people used and information accepted.

There were many predisposing factors and the researcher may not have been able to compile a complete list.

Events that the respondent listed which were said to increase the level of personal stress:

**Summer 1977-78:** Poor hay making season, drought and short season, reduced income. Visit by student group urging further on-farm spending. Injured - kicked by a cow at milking.

**Autumn 1978:** Borrowed money from Rural Bank and Trading Bank - build new cowshed.

* Final price $8,000 above original estimates
* Father died (April)
Winter 1978: Physically very tired.

Spring 1978: Problems in cowshed - poor facilities (calves)
Very wet weather
* Milked 30 extra cows - after being talked into it by MAF/FAO
  - Livestock incentive scheme.
* Suspected, but not confirmed leptospirosis.

Autumn 1979: * Physically very tired - discontented/unhappy
  Wife's grandparents died
  Own family consisted of 2 young children (trying age)

Spring 1979: Injured back, employed labour - wife managed farm, she couldn't cope with management decisions.

October 1979: Left farm and obtained city job
  Moved to the city, most unhappy at work - readjustment
  * not easy - job did not meet expectations
  attacked by work mates

October 1980: Left job, found new employment away from problems (hopefully)

(* Major factors)

The interview with this respondent was in disarray, as the respondent's thoughts and memory jumped from one incident to another. It took the researcher some time to piece together the chronological sequence of events. The learner explained -

"I started feeling down after the bad drought, this was the first feeling of being dissatisfied ..... the cowshed was $8,000 above the
original estimate, we didn't like it, we trusted the builder but he had let us down, it was a real shock because we did trust him ... it wasn't the money ... we were tired, we had young children ... you want to start the new season having had some sort of a rest over winter but with the drought, new cowshed, my father dying ... when my father died part of me just went ... part of my thinking, my farm thinking just went ... we just got back on our feet and I hurt my back ... looking back ... it helps us to talk it out, even though we've done it so often."

The personal stress the learner was suffering appeared to leave him uncertain, confused and no longer totally logical.

"We'd had a really hard year, we weren't really down to it, but when we had the opportunity to get off the farm, we didn't need any pushing. We were going to, then we weren't, then we were ... I said no I'm not going, I'll carry on, I'd already milked then for 12 years, why not carry on. Then my wife came down to the shed and said let's shift, so we did. Had we been satisfied it would never have crossed our minds."

and a further example, about the options the learner believed he had:

"I couldn't sell the farm, I'm fourth generation, I just couldn't sell the farm ... nor could I sell the cows ... I'd bought them off my father."

Referring to a conversation with the Accountant -

"... The Accountant said rather than build a new house on the farm, have a break off for say three years ... he knew we'd come in to
discuss building a new house on the farm, we wanted to build the house because we were disgruntled ..... to perk ourselves up ..... However I don't want to overcapitalise the farm, otherwise it will cost my son too much when he gets it. If it costs him too much (too much debt) then he won't enjoy the farm, the same as I have done ... will he?

Adjusting to town life and an eight to five job wasn't easy either, although the learner had some idea as to what he wanted in a job.

"Something that was interesting, working with people, without any worries, less responsibilities ... I wanted to take it easy."

However, he probably rushed into it, not being very selective in his first employment.

"The first town job, we were willing to take anything for a start, just to get off the farm, even after I got the job I carried on looking in the paper each night for something else ... I didn't like being shut inside, standing at a bench all day, on very poor wages. The people weren't stimulating, just riff-raff ... I had a screwdriver thrown at me twice ... I'd never ever had anything like that done to me before. I think I've learnt something about myself though because I've got a much better job now ... least I think I have."

The learner accepted two separate pieces of information, both in retrospect appear to have contributed to some of the problems the learner and his wife experienced.

"The students and their lecturer did a budget exercise on the farm, then I went into the University to hear what they had to say .... They said,
I'd have $X left over at the end of the year, why didn't I build a new cowshed .... well I eventually did (2 months later, Researcher's note) but it sure did cost me and brought on a lot of other problems, including debt and poor health."

The second piece of advice came from the MAF/FAO Extension Officer. "..... we had milked 100 cows for several seasons and were quite happy. The MAF/FAO said the livestock incentive grant scheme (Govt. scheme to encourage increased stock numbers) was for us, he kept pushing it, until finally we did put on the extra 30 cows and I reckon it was the start, those extra cows finished us ... it was just too much for me to cope with."

There was an earlier example of the "message being pushed" when the learner wasn't really interested, in the following quote.

"We found budgeting very hard, the MAF/FAO was very good at budgets .... but he made us budget too much and we're not budgeting people. We could understand his figures but we weren't interested. He was very budget conscious but we didn't have to watch our dollars and cents - we resented going through it in such detail."

The student and MAF/FAO incidents appear a little out of character, because the main criteria for using or not using a person or their information according to this respondent was trust.

"..... we were happy to give them the opportunity and most of all we trusted them. We knew the people and trusted them, we didn't want to advertise and try to work with strangers. It was the biggest thing if we didn't trust them, we wouldn't have leased the farm."
"We trusted him ... so we asked him."

"Every so often you've got to ask for help, you've got to trust the person, you don't want to be made to feel stupid because you don't know something, that is probably obvious to him."

Did the learner feel that he had made the right decision.

"Yes .... I needed the change, after milking cows for so long, I got very bored at my first job but I like my present job (2nd job) ... there's no pressure, I hate pressure and I don't like stress ... I enjoy spending more time with my children."

However, his wife said the opposite.

"I'm sorry now that I'm in town, once the novelty of shops wore off .... I hate being closed in. .... I blame myself, I should have done what I wanted, rather than listen to him (Accountant) ... I want to go back and I will go back."

The researcher was left reflecting on, who had in fact made the decisions, was sufficient information collected and thoroughly examined, were different opinions sought and at the time of the interview ... had the project been completed?

REPGRID:

In discussing the REPGRID the respondent noted the importance of age ie.
older and younger and/or same age as himself - as a factor that influenced who he asked for information and/or opinions. The Extension officers, Accountant, wife and farmer friend all were of similar age to himself. The grid also separated those who had played major or minor roles in the project ie. involvement.

The respondent also sees himself as "one who used outside advice" and "go ahead", whereas others were seen as "conservative and not asking for advice". The group of three "outside advisers" were also described as being "right behind us" indicating a supportive role or "assisting the respondent to do what he wanted to do".

The vertical component of the grid has the Intimate Experts (IE) in the top half and the Acquaintance Experts (AE) in the bottom half, re-emphasising the respondent's construct of outsiders and locals.
FIGURE 26  RESPONDENT No. 11
People Classification

PROJECT: LEASING FARM AND MOVING TO CITY

PETAL DIAGRAM

Key Appendix B
FIGURE 27  RESPONDENT No. 11
Occupational Group

PETAL DIAGRAM

Key Appendix B
TABLE 63:

CASE ILLUSTRATION

GENERAL DATA:

Male, 20-24 years old, married, 14 years formal education, 50-50 sharemilker (first year). A Dairy farm discussion group member. Does not employ labour - partnership with wife.

FARM DATA:

45 Hectares

PROJECT DESCRIPTION:

TITLE:- OBTAIN FIRST 50/50 SHAREMILKING JOB

SEQUENCE:

1. Aim to obtain farm ownership as soon as possible
   Discuss ideas with fiance's parents - offer of help

2. Discuss parent's offer with fiance

3. Made two important decisions - get married
   - decide to go sharemilking

4. Discuss future with farm boss while on wages
5 Discuss the philosophies of boss, with wife
6 Offered managers job (promotion) by boss
7 Discuss promotion
8 Made decision – accept managers job
9 Sought information/opinions – NZDB CO
10 Offered wife's parents motorcar
11 Made decision to purchase car
12 Discuss purchase of car – as it affected future job
   plans – NZDB CO
13 Sought opinions from farming friend
14 Discuss those opinions with wife – wife changes job
15 Draw up sample budgets – show wife's parents
16 Disagreement with boss – brought everything to a head
17 Made decision – try for sharemilking that season
18 Sought budgets from NZDB CO
19 Attended seminar for intending sharemilkers
20 Discuss seminar with wife
21 Called NZDB CO – information – job contacts
22 Contacted a farm owner and accepted job offer, subject
   to finance
23 Decided with wife to purchase herd from previous
   sharemilker
24 Agreed to purchase herd from previous sharemilker
25 Show herd to friend and look at another herd
26 Discuss options with farming friend
27 Went to Rural Bank with application – turned down
28 Lost sharemilking job, because of no finance
29 Contacted new sharemilking position offer - farm owner (Acq. Non-Expert)
   Walked farm with prospective boss
30 Discussed job offer/did budgets with wife
31 Made decision - accept job offer subject to finance
   - told boss of acceptance
32 Applied to Rural Bank for herd loan money
33 Arranged additional finance - wife's parents
   - Bank manager
   - Brother (Accountant)
34 Legalize - sort out details - lawyer
35 Discussed progress to date with wife
36 Completed final budget with NZDB CO
37 Walked farm/opinions about ideas - NZDB CO and farming friend
38 Delayed by Lawyer
39 Re-negotiated date of final job acceptance with boss
40 Walked farm with Rural Bank appraiser
41 Notified of loan success - Rural Bank
42 Discuss plans and finance with wife
43 Purchase herd
44 Notify boss of loan acceptance
45 "Can we do it?" discussion with wife
   Shift to farm - Action

This Learning project contained:
Twenty-five cyclic petals (see figure 29) with eight definite decision points using an estimated thirty different people

The farmer classified these people as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-formed interest group (1)</td>
<td>15</td>
</tr>
<tr>
<td>Chance acquaintance</td>
<td>2</td>
</tr>
<tr>
<td>Paid Expert</td>
<td>2</td>
</tr>
<tr>
<td>Paid Non-Expert</td>
<td>2</td>
</tr>
<tr>
<td>Acquaintance Expert</td>
<td>3</td>
</tr>
<tr>
<td>Acquaintance Non-Expert</td>
<td>1</td>
</tr>
<tr>
<td>Intimate Expert</td>
<td>2</td>
</tr>
<tr>
<td>Intimate Non-Expert</td>
<td>3</td>
</tr>
</tbody>
</table>

30 People

Whose occupations were:

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family (1 PRO A)</td>
<td>4</td>
</tr>
<tr>
<td>Farmers/Farming Neighbours</td>
<td>20</td>
</tr>
<tr>
<td>Extension Officers - NZDB</td>
<td>1</td>
</tr>
<tr>
<td>- MAF/FAO</td>
<td>-</td>
</tr>
<tr>
<td>- Others</td>
<td>-</td>
</tr>
<tr>
<td>Bank Manager/Rural Bank</td>
<td>3</td>
</tr>
<tr>
<td>Professionals - Accountants etc.</td>
<td>3</td>
</tr>
</tbody>
</table>

30 People
Most important to least important people: - Respondent's ranking based on:–

The respondent did two rankings, firstly a NON SPECIFIC ranking, which was subsequently divided according to those who were associated with the decision and those who "had no bearing on the actual decision" but who had "just a mechanical part" to play. The second ranking was done on the basis of those giving SOUND ADVICE.

(A) "Non Specific"

<table>
<thead>
<tr>
<th>Rank</th>
<th>Role</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intimate Expert (fw)</td>
<td>D</td>
</tr>
<tr>
<td>2</td>
<td>Intimate Expert (FM)</td>
<td>E</td>
</tr>
<tr>
<td>3</td>
<td>Acquaintance Expert (EO DB)</td>
<td>C</td>
</tr>
<tr>
<td>4</td>
<td>Intimate Non-Expert (fwps)</td>
<td>I</td>
</tr>
<tr>
<td>5</td>
<td>Acquaintance Expert (FM)</td>
<td>S</td>
</tr>
<tr>
<td>6</td>
<td>Acquaintance Expert (FM2)</td>
<td>I</td>
</tr>
<tr>
<td>7</td>
<td>Acquaintance Non-Expert (FM)</td>
<td>O</td>
</tr>
<tr>
<td>8</td>
<td>Paid Expert (RB)</td>
<td>N</td>
</tr>
<tr>
<td>9</td>
<td>Paid Expert (BM)</td>
<td>S</td>
</tr>
<tr>
<td>10</td>
<td>Paid Non-Expert (PRO L)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Self formed interest group (SEM)</td>
<td></td>
</tr>
</tbody>
</table>

(B) "Sound Advice"

<table>
<thead>
<tr>
<th>Rank</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intimate Expert (fw)</td>
</tr>
<tr>
<td>2</td>
<td>Intimate Expert (FM)</td>
</tr>
<tr>
<td>3</td>
<td>Acquaintance Expert (EO DB)</td>
</tr>
</tbody>
</table>
Interview Discussion:

Features of this interview were the respondent's use of his wife's expertise, the negotiating with farm bosses and herd vendors, and his use of two of the ACQUAINTANCE EXPERTS and the INTIMATE EXPERT other than his wife.

In discussing his wife's contribution to his project and how he used his wife, the respondent made these comments:

"Most of my working hours are spent thinking about farming - so when I'm talking to my wife, it's generally about farming - and her job (lecturer) is related to farming too. So we're continually discussing factors related to this farm and others, the people and what's happening to them. She's supported me all the way, it's not so much I as we, she's wanted it too. She gets a bit hacked off about the hours, she'd prefer to see me in earlier - so would I."
Specifically the decision making process is made clearer by this comment.

"Generally she (wife) would support what we'd talked about, I'd decide and if she was violently against it, she'd let me know and I'd reconsider ... I get told! Probably I put up most of the ideas and she's talked about the practicability of them working. She's not as keen or as aggressive as I am, she tends to be content with what's happening now whereas I always want to change things. I never want to go backwards, that's the step ..... I mean it's like buying a flash motor car, you don't go back and buy a Morris Minor and be content with it ... do you?

Talking about one of his previous bosses he said:

"John and I might not always have agreed on many things but it was a hell of a good farm and job to learn on - I wouldn't be here now had it not been a good learning experience ..... If I'd worked for ..... I would never have gotten anywhere."

That same boss and his philosophies had quite an influence on the respondent's thinking.

"He (previous boss) has probably influenced me in many of the things I've done ..... by showing me that there's only one way to get something and that's to go out and get it. In the talks we've had over the years, we were always looking for a new angle, the
economics of things - it keeps you thinking and looking forward.

He was really telling me to 'sort myself out'. The philosophy was
"always look for a new approach" to a problem or opportunity."

The Extension Officer (NZDB CO) was also classified as ACQUAINTANCE EXPERT
and his comments, questions and opinions carried considerable weight.

"I got a job as a farm manager and he (NZDB CO) straight away
asked me what my next step was and I hadn't really thought about
it much ..... I considered I was being reasonably well paid, in
fact ..... but he (NZDB CO) put up several comparisons to show
that I wasn't paid very well at all, ..... it started me thinking,
what should we be doing next. I didn't like being told I was
selling myself cheap ..... I had to re-assess my ideas."

The respondent had a way of using the Extension Officer when he was on the
farm."

"We had a specific question to ask each time he came out and the
questions varied. Often it was to get another opinion ..... it
was reassuring to know that other people agreed with my
assessment, if he disagreed, then it forced me to re-examine my
ideas ..... so that it was confirmation of what I already thought,
plus specific answers on certain questions. I'm open to
suggestions all the time, I think about things but I wouldn't say
that I was easily persuaded."

In the above quote the respondent usually had the information and partly
decided for himself what course of action he should take but used the
Extension Officer to get a second opinion, to test his ideas out. It was comforting if the opinion agreed with his own but if it didn't, then it "forced" the respondent to re-examine. The acquaintance expert's role becomes one of "respected source of information and comment", the decisions were still definitely made by the respondent. The decision usually followed a further close discussion with his wife.

In the respondent's dealings with his Bank Manager (PAID EXPERT) there is evidence of learning and also some indication that he had an understanding of the Bank Manager's behaviour in the researcher's terms and language:

"After being turned down once by the Bank ..... in our next attempt you could say we went about it in a more professional manner, - a budget for 2 years and a cash flow for 1 year - he seemed reasonably well impressed with that."

and with reference to the Bank Managers' behaviour:

"The Bank Managers are trying to get to know you better, trying to be acquaintance experts rather than paid experts. They're trying to take a more active interest in farms, which seems a bit strange, seeing that they're also trying to decrease the lending to farmers by banks, at the same time ..... I think it's more to do with credit, to establish credit ratings rather than on a personal level. It's just a more personal approach they're taking."
The respondent made pertinent comments regarding the interview and his part in the interview.

"I find it hard to classify people into categories because I've never really thought of people as experts or non-experts yet I do go to them for their expertise, when I think about it."

He continued to explain some of the reasons, why and how, he used the other people:

"I don't approach people to try and use them. I don't like feeling indebted to others. I do hesitate if I don't know a person, by the same token I'm reluctant to ring a neighbour when I need help if I'm stuck - I'm pretty independent. I'd use professional service that was available but I'm reluctant to use the person or people involved. I'm even reluctant to ask other Discussion Group members for help, except perhaps Gordon or Ross (both called INTIMATE EXPERTS) - I see a lot of Gordon and his farm - I suppose we're more friends than associates perhaps ..... we'd be helping friends rather than two farmers helping each other, I guess."

The relationship the respondent had with another person, or the way in which he viewed that relationship, influenced how he used that person to assist him with his learning project. This respondent used only two PAID EXPERTS and classified another two as NON-EXPERTS, either because mistakes were made, or the "Paid Expert" was in an official position (one of power over
the respondent) and failed to agree with the respondent's ideas/proposals.
i.e. used that "status - legal" power.

"I've got no time for these Government Department no-hopers, who
don't know what they're on about and give lousy service."

REPGRID:

The REPGRID confirmed the existence of and identified, the members of
the respondent's "SUPPORT GROUP". The members of that group included the
respondent's wife (INTIMATE EXPERT), wife's parents (INTIMATE NON-EXPERTS),
farming friend (INTIMATE EXPERT) and the Extension Officer (NZDB CO)
(ACQUAINTANCE EXPERT). There was some qualification of the statement
SUPPORT, in that the wife's parents had a financial support role more than a
moral, or personal support role.

The constructs used, "to achieve goals in farming" (mechanical) versus
"emotional, friends/relations" supports the earlier "Most important to least
important" ranking where the people were divided into mechanical and
decision people.

In the taped quotes, the respondent refers to "...I always want to
change things" ..... in the REPGRID he grouped SELF and IDEAL SELF with a
label of "Idealistic, aggressive, independent." The constructs conservative
versus ambitious and 'what is' versus 'what would like to be', also confirm
the interview comment of wanting to change and progress forward. This
REPGRID is a good example of the REPGRID confirming earlier information
obtained from the taped interview (about the respondent and his perceptions of the people) he used in his learning project.

The REPGRID provided a medium between the researcher and the respondent for a better mutual understanding but in doing so, often applied pressure on or to the respondent.

"Hell, I've never thought about my ideal self. Just because he is a mystical character (i.e. IDEAL SELF) I'll have to cross him and tick the other two (refers to filling in REPGRID) ..... perhaps that's evidence of a lack of self confidence ..... I just about need another cup of coffee after that. My God what or who is my ideal self!?"

Later, while still completing the REPGRID he reflected:

"I don't know if I'd consider myself a friend ..... I don't think I'm a very good friend. Nor do I think I'm efficient. None of us are efficient ..... ideally I'd like to be efficient. I think I'm more efficient than my boss. But an expert ..... definitely not me."
FIGURE 29  RESPONDENT No. 12
People Classification
PROJECT: OBTAINING FIRST 50-50
SHAREMILKING POSITION

PETAL DIAGRAM

Key Appendix B
FIGURE 30  RESPONDENT No. 12
Occupational Groups

PROJECT: OBTAINING FIRST 50-50
SHAREMILKING POSITION

PETAL DIAGRAM

Key Appendix B
FIGURE 31  RESPONDENT No. 12  REPGGRID

[Hand-drawn diagram with various labeled points and arrows, indicating relationships and sentiment]

- Ambition
- Conservative
- What is
- Boss
- Wife
- Ideal Self
- Previous Boss
- Friend
- Father
- Emotional
- Friends/Relations
- Work to achieve goals
- Ambition what would like to be
- Ambition what would like to be
- Not ambitious
RESPONDENT NO. 14:

TABLE 64:

CASE ILLUSTRATION

GENERAL DATA:
Male 25-29 years old, married, 12 years formal education, Farm Owner and Sharemilker. A Dairy Farm Discussion Group Member. Employs labour.

FARM DATA:

206 Hectares 350 cows
38,000 Kgs Milkfat 1979-80 season (265 cows)
143 kg Milkfat/Cow 229 kg Milkfat/Hectare
Stocking rate 1.60 Milking Cows/Hectare (166 Ha)

PROJECT DESCRIPTION:

TITLE: PURCHASE LAND

SEQUENCE: 1 Discussion with wife - getting nowhere on 39%
2 Made decision - had to get into stock
3 Discuss with father - as we had no money
4 Relate discussion to wife - father reluctant to let go. We wanted to own something - go 50/50 sharemilking
5 Asked Extension Officer (NZDB CO) to help with budgets
6 A round-table discussion with E.O. and father
7 Discussed viability with wife
8 Contacted by neighbour - offer to see 40 Hectares
9 Rang E.O. "Can it be done?"
10 Discuss E.O.'s budgets/opinion with wife
   "are we mad?"  -  Forget 50/50
11 Went to enquire Rural Bank - farm workers loan scheme
12 Discuss with E.O. - Loan scheme - with a house option,
   E.O. agreed to put case to Rural Bank
13 Extension Officer put case to Rural Bank
14 Visited by Rural Bank Appraiser - who budgeted out a
   proposal assuming extra money had to be borrowed.
   Walked farm with Rural Bank Appraiser
15 Discussed alternative finance sources with wife
16 Approached Bank Manager - loan money
17 Approached wife's family - loan money
18 Went finally to Father - loan money
19 Discuss loan with Lawyer - detailed
20 Renegotiated loan with Bank Manager
21 Discussed details with Accountant - sought information
22 Finalized details with Lawyer
23 Notified Rural Bank of additional finance being secured
24 Check progress with wife
25 Notified by Rural Bank - loan success
26 Made decision accept loan - celebrate
27 Want to buy additional stock - go to clearing sales
28 No progress at sales - discuss with wife
29 Contact stock agents
30 Purchase required cows
31 Discuss options with neighbour
32 Final discussions with E.O. as to best option
   - How to manage own farm and 39% sharemilking
     through Father's cowshed
33 Decide with wife on management - Proceed

This learning project contained:

Eleven cyclic petals (see figure 32)
with five definite decision points
using an estimated 26 different people

The Farmer classified those people as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chance acquaintance</td>
<td>13</td>
</tr>
<tr>
<td>Paid Expert</td>
<td>5</td>
</tr>
<tr>
<td>Paid Non-expert</td>
<td>1</td>
</tr>
<tr>
<td>Acquaintance Expert</td>
<td>2</td>
</tr>
<tr>
<td>Acquaintance Non-expert</td>
<td>1</td>
</tr>
<tr>
<td>Intimate Expert</td>
<td>3</td>
</tr>
<tr>
<td>Intimate Non-expert</td>
<td>1</td>
</tr>
</tbody>
</table>

26 People

Whose occupations were:

Family 4
Farmers/Farming neighbours 14
Extension Officers NZDB 1
Bank Managers/Rural Bank 3
Professionals Accountants etc 2
Contractors - local business/Agents 2

26 People

Most important to least important people:  The respondent ranked the people according to, the HELP GIVEN and the QUALITY OF ADVICE.

(A) "Help Given"

1 Intimate Expert  -  Wife
2 Acquaintance Expert  -  EO
3 Intimate Expert  -  Wife's Parents
4 Intimate Non-Expert  -  Father
5 Acquaintance Non-Expert  -  Father-in-law
6 Paid Expert  -  Rural Bank Officer 1
7 Paid Expert  -  Rural Bank Officer 2
8 Paid Expert  -  Lawyer
9 Paid Expert  -  Accountant
10 Paid Expert  -  Stock Agents

(B) "Quality of Advice"
1 Acquaintance Expert - EO
2 Intimate Non-Expert - Father
3 Intimate Expert - Wife
4 Paid Expert - Rural Bank Officer 1
5 Paid Expert - Rural Bank Officer 2
6 Intimate Experts - Wife's Parents
7 Paid Expert - Lawyer
8 Paid Expert - Accountant
9 Acquaintance Expert - Farmer
10 Paid Expert - Stock Agent

Interview Discussion

This respondent used and relied heavily on the assistance given by the Extension Officer (NZDB CO) who he classified as an ACQUAINTANCE EXPERT. His thoughts on finance and his dealings with the lending institutions also influenced the complexity and pathway of the learning project.

Some of the reasons for the farmer's use of the Extension Officer (NZDB CO) came from the taped conversation of the interview.

"He (EO) is my own age and I can communicate with him ... with careful use of figures on paper he was able to convince Dad, which was some job! ... There's no way he (EO) could be anti really because the project was sound, yet a lot of people probably still think I'm mad having it on but he supported the idea and showed that it could work on paper. ... Put it this way, his attitude
gave me heart, I thought, all right I can do it then. I needed that because Dad thought I was mad and so did a couple of blokes in the Discussion Group, it only needed him (EO) to say I was mad and I would have had to think of something else ..... I think he's pleased I'm doing so well up there on the new farm, to see me doing well must obviously give him a lift. If something went wrong I'm sure he'd feel bad about it."

There were some specific examples of what the Extension Officer was doing and how this affected his working relationship with the farmer.

"When he (EO) comes onto the farm, I don't agree with everything he says. He must raise his eyebrows at some of the things we do. Really what his job is, is to tell us how far we can go towards making a dollar and we have to choose how far along that line we want to go."

and

"We wandered around the farm, came back to the house and worked it all out. I think initially he was a bit shocked that I was going to milk cows on it (it's very steep in parts), but that was only at the start ..... he must have taken lessons in psychology I reckon, because I said to him 'I suppose you think I'm mad' and his exact words were 'I don't think you're mad'. The impression he gave me was ... well better you than me but if you're going to milk cows up there lets get on and see how you can do it."
The respondent's thoughts and insights into his own behaviour and thoughts were well illustrated by his reflections about finance.

"People like contractors, self-employed blokes who come onto the farm to work, they get their cheque within 24 hours of completing the job BUT jokers like the Power Board ......., we got a letter from them the other day saying they'd cut our electricity off, so we paid up ....... that's how I work it. I don't pay the most outstanding bill first but I pay those blokes who are like myself - self-employed, whereas the big companies and corporations ....... they can wait!"

However, he had difficulties when it came to negotiating with the local Bank Manager (PAID NON-EXPERT) for loan money. The perceived attitude of the Bank Manager and the terms he offered, earned him a PAID NON-EXPERT classification.

"We had security to offer the bank - the miserable sods - they finally and reluctantly lent us a lousy $12,000, and we had to pay the first instalment before we hardly got any of it out of them. I told him it was too tough but he reckoned his hands were tied by Head Office - I was very tempted to change Banks. When you're in his office, it's his territory ....... he can really get a good look at you ....... he sits there, a dark suit and white collar joker, so he looks a bit like an undertaker for starters."

Yet, in his dealings with the Rural Bank, the respondent had a personal
method of approach which left him more confident and sure of his ground when contacting the major lending institution.

Researcher Q: "When you went to the Rural Bank, who did you see?"
Respondent A: "I went to the chief – Dad always told me that, never ever see No. 2, always go to the top man."

Q: "You were asking a straight forward question of the Rural Bank but that question had a few complications, didn't it?"
A: "Oh no ..... I left the complications out .... I didn't think there was any point, I usually say too much as it is ..... but I try very hard to say as little as possible to blokes in those sorts of positions ..... just let them ask the questions and I'll answer them."

Q: "What sort of positions?"
A: "Ah, official people, who I don't know very well."

Clear evidence of a plan of attack or strategy when talking to, or seeking information from PAID EXPERTS.

The respondent also had some pertinent comments about Extension officers and his district's (fairly isolated district) attitude to Extension officers.

"I work with the NZ Dairy Board and Dad did before me ..... I don't believe I should have him out for every little problem, a neighbour used to have his (NZDB CO) predecessor living on the
farm just about ..... I would like to think, that if I ring him he knows it's serious and that he'd try to get onto it straight away. Unless the problem is costing me dough ($), I'd try to sort it out myself. There's a lot of older farmers up here, Soldier settled farmers and they are very anti-advisory, I don't really know why, whether they've had a bad experience or not, I don't know."

The discussion group did not feature in this learning project but the respondent referred to it when he was discussing his district's use of Extension. (the D.G. is visited by NZDB CO)

"I often wonder what the really good farmers - the guns.- get out of a discussion group. Yet one of them said to me after we'd seen a real shambles of a place - "Well you may not learn what to do but you should be able to see what not to do."

"It's a good day out with your neighbours - I don't think it's just an idea swopping session, it's also a social session as well, where you can have a general discussion too. It's good value, I think. The group never really features in my decision making though ..... but some of my ideas may have come from what I've seen and heard at group day."

REPGRID

The Repgrid again identified that close personal support group in this example which included the respondent SELF, IDEAL SELF, the respondent's
wife (INTIMATE EXPERT), wife's parent's (INTIMATE EXPERT) and the Extension officer NZDB CO (ACQUAINTANCE EXPERT)

The Extension officer in this project had a major role in information/opinions and a working relationship that sounded most convivial, so it was not surprising to see him grouped with the other SUPPORT people, i.e. wife and wife's parents.

The Bank Manager (PAID NON-EXPERT) is clearly in the "negative" and "outsider - don't know as much about dairy farming quadrant". The interviewer learned, not during the interview but possibly implied in it, that he had referred to the Bank Manager as having "no faith in me". His story and preparation had either not been good enough or not presented in such a manner as to gain the support of the Bank Manager.

The Rural Bank - not very enthusiastic group and the vendor, farming friend (vendor's father) and the respondent's father - in the "not really in favour" group, appear to be approximately half way between SUPPORT and anti-idea "no faith in me". They could change or were persuaded to change their minds in favour of the project and the respondent's aims and objectives were achieved.
FIGURE 33  RESPONDENT No. 14
Occupational Groups
PROJECT : PURCHASE OF LAND

PETAL DIAGRAM

Key Appendix B
DISCUSSION.

To elicit dairyfarmer's learning projects proved to be a relatively straightforward task. Few required prompting as a high percentage of the projects were work or family related.

TABLE 65
OVERALL SUMMARY OF LEARNING PROJECT DATA (N=25)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>For Study</th>
<th>Per Respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of interviews</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>5</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Number of projects</td>
<td>45</td>
<td>75</td>
<td>152</td>
<td>105</td>
<td>377</td>
<td>15.1</td>
</tr>
<tr>
<td>Mean number/respondent</td>
<td>9.4</td>
<td>15.0</td>
<td>15.0</td>
<td>21.0</td>
<td>15.1</td>
<td>15.08</td>
</tr>
<tr>
<td>Number work related</td>
<td>35</td>
<td>28</td>
<td>98</td>
<td>75</td>
<td>236</td>
<td>10.4</td>
</tr>
<tr>
<td>Percent work related</td>
<td>74%</td>
<td>37%</td>
<td>64%</td>
<td>71%</td>
<td></td>
<td>69%</td>
</tr>
<tr>
<td>Range in numbers</td>
<td>0-18</td>
<td>8-30</td>
<td>5-26</td>
<td>16-25</td>
<td>0-26</td>
<td>0-30</td>
</tr>
<tr>
<td>Range work related</td>
<td>0-11</td>
<td>3-11</td>
<td>5-17</td>
<td>9-20</td>
<td></td>
<td>0-20</td>
</tr>
</tbody>
</table>

N=20 N=25

* Dairyfarmers only (ie. exclude stage 2 results)
In all other respects there was no reason to believe that dairy farmers were significantly different from a range of other adult populations previously studied. In short, dairy farmers are an active group of adult learners.

Due to changing levels of interviewing skill no valid comparison can be drawn between the Australian and New Zealand populations.

RESEARCH TECHNIQUE

Tough's learning project concept is a neat unit for investigation. The studies into adult populations clearly show their use of the learning project to be extensive. The majority of these projects are self directed, initiated and controlled by the learner. Self directed learning is, it appears, a major proportion of an adult's learning activities. However, the results (Table 45) are so similar across a very diverse population that the question must be asked - "Is the question/interview structure framing the results?" i.e. are the results being predetermined by the method? The rigidity of the question format and the difficulty to distinguish between learning projects and life experiences support this argument. When experimenting with non-adaptive materials the same process can be expected to produce the same results each time. Any differences can be traced to variations in method or measurement.

LEARNING STRATEGIES - CARD SORT

The card sort produced some simple and brief strategies of learning projects. Other than illustrating that people were likely to have different strategies using different resources, the analysis proved to be very
shallow. Preprinted cards tended to preempt the result. The language was different, a simple word conveyed different meaning to each respondent. One's imagination as to how to layout the cards often meant that the depth of the learning process or strategy was not conveyed to the researcher - meaningful conversation was not produced. The research technique was imposing an artificial environment and framework, that restricted the respondent's scope to discover and discuss his own actions and emotions.

At each interview, questioning skills developed. This intensive probing and listening was strengthened by using the audio-tapes to seek effective feedback. However, the counselling skills outstripped the scope of the card sort to effectively illustrate the process of the learning project. The linear layout of a learning strategy in seeking simplicity, left too many doubts as to what really happened. The card sort did not assist in a better understanding of the human relationships that developed between learner and resource person. Examples like Respondent G exposed the likely importance of these relationships ie how the relationship effected the learners 'use' of the resource person. Discussion with fellow humans is clearly a major learning strategy used by adults. Therefore the nature of the social relationship was clearly a very important component of the 'context' of the learning situation.

Respondent I although interviewed using the 'clinical' method rather than the card sort exposed a further limitation of the card sort. Respondent I reflected some of the inner thoughts - governing variables or core constructs - that were having an immense influence on the learning project. These personal philosophies dictated the objective of the project, the strategy and the human resources. The card sort as a focal point failed to
reach this information. At the best it assisted in the collection of objective data, but the card sort fell well short of the wealth of subjective insight which appeared now to hold the key to a better understanding of the learning process.

THE DEVELOPMENT OF THE 'CLINICAL' METHODOLOGY

The development of this research method was as much a reflection of the researchers' own personal development and skills. To create a research conversation modelled on Piaget or Pask or Thomas demanded counselling skills as described by Carkhuff (1977).
Each of the levels of helping skills above the nonattending level serves an important purpose in the helping process. Each helper behavior leads to an important helpee activity.

Attending leads to helpee involvement. Responding facilitates the helpee’s exploration. Personalizing deepens the helpee’s understanding. Initiating enables the helpee to act constructively.

Functions of Helping Skills
Important to the success of the conversation technique was to have clearly defined goals. Learning is too large a goal for one conversation. To achieve a negotiated and shared meaning conversations should be determined purposeful, highly skilled and creative interactions. A series of pre-determined end points was established:–

- A map of the learning project.
- Identifying key people and the nature of the social relationship.
- Seeking a better understanding of how this relationship was affecting the use of that person.
- How did the learner cope with change.

The conversational technique provided a systems approach capable of meeting these end points. The 'laissez-faire' approach offered a powerful tool of investigation but the permissive approach could easily degenerate into a situation of freedom without structure or direction.

Conversational research leads to conversational results. The results should provide a reliable and validated understanding of the phenomena under investigation. Tested by the power it offers either to predict or to intervene and influence. A bald description (map of learning project a strategy) of procedure and consequences offers little in terms of prediction and influence. The same events (with humans and their interactions) rarely lead to the same consequences. The important consequences of conversational research are the models or processes which allow the researcher to achieve his intended result by interaction with a changing and adaptive participant.
In the majority of major learning projects discussed within the study, the learner suffered emotional and in some cases physical stress. In some families this stress or the stress of the project itself, in turn affected other participating family members (e.g. wives). In the final 29 interviews, stress or the reaction to stress was volunteered information by 21 of the respondents, i.e. 72%. The causes of this stress fell mainly into four areas:

1) that caused by their attempting and learning something new. There was a high risk element to most projects because they involved change. This change was likely to affect both the decision maker and others as a consequence of the decision.

2) their difficulties in dealing with other people, particularly those who were 'anti' the learner's aims and objectives and those who held power over them, e.g. financial, regulatory or informative powers. Conflict with intimates was a major cause of emotional stress. The learner-intimate relationship is a strong one, so if there is conflict with an intimate it is generally very difficult to deal with. Conversely it is often difficult for an intimate to assist a learner because they are often "too close to either the person or the problem" to help.

3) The financial burden of a major project.
4) The pressure of meeting deadlines within the project. The stress manifested itself as depression, physical illness, fatigue, unusual nervousness and in one case virtual mental breakdown causing the respondent to leave the farm and change occupations.

Farmers' reactions to this stress varied from: giving the family a hard time, smoking more, being rough on labour, to more serious behaviour of; heavily drinking and/or seeking prescription drugs for relief, to physical violence. Most admitted to times when they were aware that their judgement and communications with other people were being affected.

Twenty-one respondents discussed personal stress during their project, of these people 10 sought medical help, 2 the services of their respective churches, however few talked it over with family members and many, although aware of the pressures, refused either to admit it openly or seek someone's help. The ten people who approached their doctors were generally given prescription drugs, few were given any counselling or opportunity to discuss their problems.

These major projects being undertaken by the respondents had considerable inherent risks and Extension officers should be aware of the possible stress being suffered by any farmer working his way through complex farm management decisions.

On the positive side, the majority of the dairyfarmers interviewed employed a number of successful coping strategies. The major strategy was the use of intimates/family members and close friends by seeking their
support - psychological, moral and technical. Intimates acted as a checkpoint for information and decision making, in a sense causing a pause to allow clear, well thought out judgement. The intimates influenced the judgement of sources of information (perception of people) and of the information itself. The nature of dairyfarming partnerships often meant that the intimate also had a commitment to the project and an investment in the outcome. The necessity of and emphasis put on trust and trustworthiness of people, highlights the vulnerability and feeling of risk that dairyfarmers feel during a major project.

Dairyfarmers seek information and assistance from a wide range of people. The number of people contacted and the careful checking process using acquaintances, intimates, and their own judgement and experience is a coping strategy that adds security to the final decision. The validation sought from acquaintances is a deliberate attempt to seek an alternative opinion.

The Learners when seeking information do seek it from people they identify as having expertise in that subject. These paid experts may not have the official sanction of being 'qualified or the official source'. The validation and checking farmers subsequently do is aimed at satisfying themselves that the information is in fact 'good'.

The dairyfarmers interviewed all used Extension Officers. The Extension Officers varied in their ability to help the client cope with the stress. Extension Officers identified as paid experts knew little of the farmer's personal life, his family or family situation. Farmers often employed more than one Extension Officer, 'worshipping' one while
criticising the others or what the others offered. Invariably there was an indication that one was working closer to the farmer actively helping him to cope. Whereas the others were more distant, trying to get the message across, possibly being seen as 'not relevant', 'out of touch', lacking feeling or empathy with the client's goals and objectives.

The stress of the project was made worse in many cases by the decision maker being physically fatigued. In addition to the workload of routine work, the project often added physical work. Some farmers talked of the need to take a break, get off the farm and have a holiday. However their ability to do this at the time depended on available finance, how they were coping mentally and the support and security provided by the family. The attitude necessary to take a break from the farm seems itself to be a state of mind. A coping strategy not employed by all farmers.

Few Extension Officers realised the stress or depression farmers and their families suffered or experienced as a consequence of the learning project. Farmers themselves often didn't recognise or were not prepared to admit the difficulties of coping with change. Some farmers really struggled to cope with the stress. Respondents appreciated discussion about their ability to cope with stress and particular events that were stressful or led to personal crisis. The Kubler-Ross model defining a crisis as a stage of growth was quickly understood. A better understanding of oneself and one's ability to cope (The process) would lead to better self management. Past experiences previously viewed negatively could be created into positive learning experiences.
THE LEARNING CONVERSATION MODEL

The qualitative and subjective nature of the data and the fact that each set of data from the interviews arose from a unique experience of the interview between the researcher and the respondent, makes comparative analysis not relevant. However similar personal relationships led to similar consequences and similar actions to reactions. These were repetitive throughout the investigations. The learners' (dairyfarmers') perception of the people they have social contact with, greatly influences their use of those people, in their learning and decision making.
FIGURE 36

A MODEL – THE LEARNER’S SOCIAL ENVIRONMENT AND LEARNING PATHWAY

LEARNING (PETAL) DIAGRAM

1. Idea formed
2. Information
3. Validation
4. Support
5. Decision
In giving man credit for being active rather than passive, a social diagram (Figure 36) would place the dairy farmer at the centre, as it is the individual who self-directs his/her learning activities. Other people are then placed according to the individual's perceived social distance from self. Close to self are intimates; parents, siblings, relatives and close friends. Further out are acquaintances; people who are known to self but not regarded as being close friends. On the outside of the diagram are paid experts; people whose services the individual would pay for, or who are paid for their expertise, information or services. These paid experts could be classified as intimates or acquaintances if they are known on first name terms. People unknown to self do not feature in the immediate social environment.

**LEARNING STRATEGIES OF ADULTS**

An adult's learning strategy starts with himself as he reflects, observes, perceives and thinks about a problem, or opportunity for learning or change. This is sparked off either after discussion either with an intimate, eg farmer's wife, or casual meeting with idea, after reading a book, listening to the radio, taking part in a discussion group argument or reading a conference paper.

Through inquiry and the seeking of information, he talks, listens, discusses his "project" with others. In conversation with paid experts information is sought, which in turn is brought home for thought and discussion with an intimate.

Acquaintances may also be sought for their expertise, but the main role of the conversation with the acquaintance seems to be to seek a differing
opinion. The person wants validation and confirmation of existing opinions. By knowing an acquaintance better than the paid expert, they have the confidence to test ideas and perhaps deliberately search for opposition when conversing with that acquaintance.

The intimates are not always experts, but are close and trusted people. Intimates play an important role of support. By carefully listening and checking evidence they are able to assist with making judgements which lead the individual to decision making. Farmers generally list intimates as the most important people, highlighting the importance of intimacy, trust and support in decision making. Many of the interviews showed that there was considerable personal stress and anxiety associated with the making of major farm decisions.

People vary in social distance from the learner. The main factor is the degree of intimacy; how well the person is known, trusted and liked. On first meeting, a stranger cannot help but be near the outside. As the individual gets to know the stranger better that person moves closer, perhaps to become an acquaintance, or if the relationship really developed, to become an intimate. As this process develops so too will the way this person is used by the learner.

Each stratum fulfils a vital component of the learning strategy; reflection, inquiry, action and evaluation.

In summary, there were four distinct phases of the process of the learner (decision maker) 'coming to know' or learning through conversation with other people.
Phase 1 - Attaining the idea either from an intimate, often the farmers wife. Or a casual meeting with an idea eg field day (reflection).

Phase 2 - Information is collected, sorted and analyzed. Mainly from the outer circle of "paid experts" or outsiders but possibly from acquaintances or intimates, expert or non-expert. (inquiry)

Phase 3 - Validation which is part of the analysis of information - but a distinctive process in its own right. Invariably acquaintances are used because they offer that outside unbiased viewpoint, yet are known well enough to the trusted. The learner is still rather vulnerable as their innocence exposes them to embarrassment or even ridicule.

Phase 4 - Support: The information/validation cycle is now complete if the learner seeks support from an intimate before the decision is made. Action quickly follows. Often the learner has reached a point of understanding that allows him/her to know, either to make a decision or to lay the options clearly down, before an informed choice can be made. The support phase highlights the risk of change, and shows clearly the closeness of human relationships necessary for learning and decision making by adults. People rarely make major decisions or undertake learning projects alone. The support phase is part of evaluation, which implies some action (thinking) has already taken place. Throughout the research it was assumed that the male dairy farming partner was the learner or the decision maker. So important was the support role that it often became difficult to clearly distinguish the learner from the intimate (often the farmers wife). The learning was often a joint
venture between intimates be they husband/wife, partners or siblings.

Action: The action was frequently a relatively straightforward consequence of what had preceded, not done under stress or pressure. In short all the hard work had taken place during phases 1-4. Evaluation had been partly done during phase 2, 3 and 4, but often marked the start of a new project, eg. discussion with an intimate (phase 1 - Idea).

The complexity of the petal diagrams was influenced mainly by the size of the project - measured in capital $ outlay. The number of people sometimes reflected the difficulty the learner had in terms of obtaining the 'right' information. In other cases it was a reflection of the thoroughness of the search. People with more formal education tended to use more and a greater range of people to assist them in their learning project.

PEOPLE - THE MOST VALUABLE LEARNING RESOURCES

Conversation appears to be the most important process for adult learners. Therefore other people are the most valuable learning resources available to the learner. The results show that people "known" to the learner, play very different roles according to the perceived social distance from the learner. It is the learner who's perception is so critical, in fact the 'people resources' may be oblivious (probably are) to the role in which they are playing in the learning project. The social diagram formed is in fact a freeze or one frame of a dynamic ever changing environment. People move closer to the learner over time as contact increases and trust develops. Likewise some people probably move away from
the learner as disagreements occur. The corollaries (Kelly 1955) of commonality and sociality clearly, explain the dynamic nature of the learners' social environment. As constructs liken, the people and the conversations become more important to the learner.

In asking the respondents to rank people, in terms of the value to either the project or the learner himself, intimates were consistently ranked the most important. The Repertory Grids identified an inner group of important people, invariably this group were the top ranked and predominantly intimates. The important role of the intimates was consistently reconfirmed. Trust, support, a closeness of human relationships and a very similar view of the world (constructs) meant the learner used the intimate as a gate keeper, to assist with and protect him in coping with change and decision making. The learner is vulnerable and the risks taken by the learner may have previously been underestimated.

Acquaintances were valuable resource people in terms of information and support to the learner. It is a legitimate role for extension officers where their technical expertise is respected, their judgement and common sense applauded. The acquaintance is distant enough from the learner to be objective.

Paid experts play a very minor role in terms of support, yet the project won't proceed without information (the fuel of the project). Paid experts are an essential resource to the project. The role is clearly to provide good information, which is timely, whole farm in nature and empathetic to the learners objectives. Each project examined used each strata of people, intimates, acquaintances and paid experts. The number of people in each strata was inverse to the importance the learner placed on
Family members play a major role in learning projects of dairy farmers. Especially the farmer's wife or some other particular intimate. Family members were usually described as intimates either expert or non-expert, unless the family member was a block to the learner's progress. Intimacy was clearly dominant yet technical expertise or experience was highly respected by the learner. Family members are very important to dairy farmers during their learning projects and play a major role in the decision making.
FIGURE 37 Occupation groups – people who the farmers used in their learning/decision making projects

TOTAL

- Family: 9%
- Farmers: 51%
- EOS: 6%
- Contractors: 11%
- Local Authority: 2%
- Banks: 8%
- Professional: 8%
- Others: 5%

Stage 3 VICTORIA

- Family: 5%
- Farmers: 59%
- EOS: 5%
- Contractors: 16%
- Local Authority: 3%
- Banks: 9%
- Professional: 2%

Stage 4 WAIKATO NZ

- Family: 13%
- Farmers: 48%
- EOS: 5%
- Contractors: 11%
- Local Authority: 12%
- Banks: 10%

Stage 5 MANAWATU NZ

- Family: 10%
- Farmers: 49%
- EOS: 5%
- Contractors: 9%
- Local Authority: 4%
- Banks: 8%
- Professional: 7%
FIGURE 38 HOW DAIRYFARMERS INTERVIEWED
(10 AUST, 19 NZ) classified the Extension
officers they used in their learning projects

Extension officers overall
N=54
- Intimate Acquaintance: 9%
- Paid: 41%
- Chance: 2%

NZ Dairy Board Consulting officers
N=23
- Intimate Acquaintance: 17%
- Paid: 44%
- Chance: 2%

NZ Ministry of Agriculture
N=9
- Intimate Acquaintance: 11%
- Paid: 67%
- Chance: 22%

Dept. of Agriculture (Victoria)
N=10
- Intimate Acquaintance: 30%
- Paid: 70%

Others
N=12
- Intimate Acquaintance: 8.5%
- Paid: 50%
- Chance: 8.5%
Other farmers are numerically the largest group of human resources used by dairy farmers. The majority of learning projects are farming/work orientated with distinct action goals. Other farmers are neighbours, fellow discussion group members, relations and friends. In a rural community, other farmers and their families are the major social contact and likely to be business associates as well. This may well be stating the obvious but when the social environment of the learner is so important, then extension and educators have probably under estimated it’s relative importance.

Extension Officers numerically were a minor group of people, who appeared in all three stratas - paid experts, acquaintances and intimates. They were paid experts to most dairy farmers and intimate with very few. However this appeared to apply not only to Extension Officers collectively but also to each individual - recognising that the Extension Officers involved with the respondents were all experienced staff. An Extension Officer identified as being highly respected and very effective was still identified as playing a different social role to different farmers. However effective Extension Officers could quickly shift from paid expert to acquaintance, changing both the role and the relationship to the learner. Technical competence was important but helping skills or the ability to effectively counsel was identified by learners as the primary factor responsible for their effectiveness.

The repertory grids suggest that it's not only the Extension Officer to learner relationship that is important, but also the relationship the intimates (wife in particular) have with the Extension Officer. This again illustrates the importance of the intimates role.
This study suggests that high farmer contact is important to the effectiveness of the Extension Officer. The greater the contact, the closer the Extension Officer moves toward the learner and the decision making. Mass media and planned extension programs play a very minor role in the learner's project compared to person to person client contact. Follow up visits after the initial contact greatly assisted the learner and increased the likelihood of success for the Extension Officer, compared to single one-off contact with the farmer. Good information was always important, but especially on a single visit to the farm.

Technical competence may get Extension Officers in the farm gate, but it is interpersonal communication and helping skills which largely determine their effectiveness. Extension Officers need to have an empathy and feeling for the farmer, his family, the farm, the farm problem, and the industry he is working in. He needs to be close and in touch with all of those aspects.

The financial nature of these major learning projects meant that bankers, rural appraisers, accountants and lawyers were involved with most projects. Interestingly enough they were predominantly described and used as paid experts. Their lack of contact and sympathy with their farmer clients partially explained that description. However they were openly criticised for their general lack of extension helping skills. The farmers often felt that the financier/financial adviser often had a very narrow perspective of the problem/project and lacked a whole farm approach and empathy with the learner's objectives. It is the farmer's perceptions of reality that are important perhaps rather than reality itself, as it effects his use of the financier.
THE IMPLICATIONS FOR AGRICULTURAL EXTENSION

"Learning is finding out what you already know. Doing is demonstrating that you know it.

Teaching is reminding others that they know just as well as you.

You are all learners, doers, teachers."

Richard Bach Illusions (1977) P.46

THE LEARNING EFFORTS OF DAIRYFARMERS

The dairyfarmers interviewed were all active adult learners. People were the main resource and conversation the active means of learning. The importance of the social context in which these conversations took place can not be over emphasised. The dairy farmer learner was very active, capable of planning and carrying out his own learning project, ie. be an effective self-directed learner. The dairyfarmers were taking an active rather than passive role in this process of learning. Learning is an integral part of social intercourse, where human relationships, emotion, coping skills and strategies help explain the process. Although farming is often a solitary occupation, farmers actively seek contact with those they believe can assist them with their learning projects.

Implications of The Literature Review

In both Australia and New Zealand a thriving agriculture has meant more rapid expansion of the supporting services. Government has until recently had a clearly defined and a dominant role in the services provided to agriculture. As the role of Government changes, budgetary cuts have been imposed in the agricultural sector. The implications of these changes have as yet either not been fully recognised or understood.
Agricultural extension has had a traditional approach to its work with farmers, largely working on theory bases that are now decades old. These philosophies appear to have been limiting at the time of writing but now have been demonstrated not to be working (Rogers 1976; Woog 1978) and even counter productive (Woog 1982). The effectiveness of extension is being continually questioned and the agencies' response is largely to examine the content of the message rather than the process, the individual and the extension/client relationship.

A major requirement for both agricultural extension and adult education is to understand the nature of change better. The process of learning or decision making needs to be seen as a process of change and successful adaption of coping skills. The emphasis must shift to an understanding of the process rather than content, otherwise it will sever future growth.

In 'coming to know' (Phillida Salmon 1980) man is to be viewed as an active 'doer', with an ability to anticipate based on his past experiences. In facilitating that process it is critical not to bypass personal knowledge or at the worst do violence to it.

A holistic approach to investigating learning must examine the process yet not ignore the social context. Most investigations in the past have tended to act in a vacuum, removed from the social environment and its influences. Learning is such an immense subject that it requires a systems approach, that accepts qualatative methodology and data.

Implications of this Investigation

Extension Officers and their agencies need to understand the nature of
change and the process which enables people to make changes. This will require a better appreciation of the client (farmer) and his social environment, as well as the abilities and experience he contributes to the relationship. The extension officer has much to learn from his client so that learning develops from mutual respect and agreement. Learning should be seen as a process of understanding initiated by the learner. This appears to require a quantum leap from the 'theories in use' at the present. Too often the extension officer puts his/her energies into

"Trying to prove the superiority of his own knowledge, rather than helping the Managers to test the implications of their own interpretations."

Schapper (1963)

A high level of technical skills are accepted as a first prerequisite, however, the need for 'helping skills' has been largely ignored except for some within service recognition of the value of 'seat of the pants' experience.

To best facilitate learning the extension officer requires empathetic helping and communication skills that he/she can apply successfully within a working relationship with the learner. The farmer needs to be respected as a self directed learner. Self directed learners are normally self starters. The concept of the 'spiral of opportunity' is a real phenomenon, it is likely that those already using existing technology and management strategies (eg. Artificial Insemination) successfully, are those who will benefit most from new technologies (eg. ovum transplants).

It will become increasingly important that dairyfarmers know where to
seek information and have an ability to communicate with a wide range of people resources. Their (farmers) base level of schooling or formal education and extension services ability to direct people to good information quickly, will be essential components in the emerging environment of rapid change. We are now firmly in an information society and extension services will have to do more than justify their existence on past performance alone.

The learning model (petal diagram) developed from the study simplifies learning/conversational behaviour of adult learners which can often be very complex. However, several points emerge that are important to extension:

- People are a major source of information, validation and support for dairyfarmers making farm decisions.

- Other dairyfarmers are the largest and possibly the most influential social group that effect any one farmer. - The perceived social distance and the degree of intimacy affects how a farmer uses outside professionals. Those professionals (including extension workers), are a relatively minor group numerically in any one farmer's social contact that influences his decision making.

- The nature of the process, in particular the fact that learning is initiated by the farmer, should bring into question the emphasis and effort put into planned extension programs by the relevant agencies (especially Government agencies). The role of planned programs in "putting the message across" appears to be more for the convenience of the servicing agency rather than its effectiveness as an extension method.
The face to face contact an Extension Officer has with his clients, greatly effects the degree of intimacy, communication and level of trust established.

Extension Officers need to take a lead by initiating innovative farm management systems which are soundly based and empathetic with farmer goals. This requires creative thinking that integrates management with all aspects of the animal husbandry sciences. Too often learning projects showed that extension was piece meal, not integrated, out of date and neither topical nor relevant. Extension Officers also need to have a sound understanding of financial management as this now represents an important aspect of major on farm changes.

Individual Extension Officer's operate and are used by different farmers in different roles. Extension Officers should be aware of this and use it to their advantage and effectiveness, conscious that the requirements of each role (eg. paid expert or acquaintance) are quite different.

Personal Construct Theory is a Theory base that should be further utilized by extension services. It's (P.C.T.) power to map peoples' perceptions and thinking could be used to greater effect in research, evaluation and marketing of extension.

To help learners learn the Extension Officer needs a clear understanding of the learning process and his part in that process. He must be able to effectively identify and utilize the other people resources to facilitate the efforts of the learner. To operate in isolation, the Extension Officer
would greatly restrict his potential effectiveness.

- People cope better with change if they understand the process of change itself. Likewise people make better decisions or cope with stress if they understand the processes of decision making and the pathway of change/stress. To assist people to understand these processes, Extension Officers will need to "know themselves" and be competent helpers in the counselling sense.

- The challenge will be for extension to contribute to an already effective, on going, rural adult learning activity.

- All too often extension workers have the implicit belief that they are the educators (or sole advisor), and that people come to them to be taught. People engaged in self directed learning use professionals as one of the many resources available to them. They come to the professional agriculturalist knowing quite well what they want and take what is relevant to them.
LIST OF REFERENCES


BAWDEN, R. Agricultural Education. Do We Really Know where We are Going. 15th Pacific Science Congress. Dunedin New Zealand, Feb 1983.


BERNARD, J.L. An Educational Approach to the Adult Learners Activities in Basic Education. Literacy Discussion, 1974.


FREIRE, P. Knowledge is a critical state. FAO Review 4 (3) May June 1971.


GUBA, E.G. and LINCOLN, Y.S. Epistemological and Methodological Bases of Naturalistic Inquiry. Education Communication and Technology. A


HIEMSTRA, R. The Older Adult and Learning. Department of Adult and Continuing Education, University of Nebraska, Lincoln, 1975.


KNOWLES, M.S. Philosophical Issues that Confront Adult Educators. Adult Education 7, 1957 234-244.


PRESSER, H.A. and CORNISH, J.B. Channels of Information and Farmers' Goals in Relation to the Adoption of Recommended Practises. Bulletin No 1 Rural Sociology Department, University of Melbourne, 1968.


PERSONAL CONSTRUCT THEORY:

FORMAL CONTENT AND DEFINITIONS.

Formal content of personal construct theory.

Fundamental postulate: A person's processes are psychologically channellized by the ways in which he anticipates events.

Construction corollary: A person anticipates events by construing their replications.

Individuality corollary: Persons differ from each other in their constructions of events.

Organisation corollary: Each person characteristically evolves from his convenience in anticipating events, a construction system embracing ordinal relationships between constructs.

Dichotomy corollary: A person's construction system is composed of a finite number of dichotomous constructs.

Choic corollary: A person chooses for himself that alternative in a dichotomized construct through which he anticipates the greatest possibility for the elaboration of his system.

Range corollary: A construct is convenient for the anticipation of a finite range of events only.

Experience corollary: A person's construction system varies as he successively construes the replications of events.

Modulation corollary: The variation in a person's construction system is limited by the permeability of the constructs within whose range of convenience the variants lie.

Fragmentation corollary: A person may successively employ a variety of construction systems which are inferentially incompatible with each other.

Commonality corollary: To the extent that one person employs a construction of experience which is similar to that employed by another, his processes are psychologically similar to those of the other person.

Sociality corollary: To the extent that one person construes the construction process of another he may play a role in a social process involving the other person.

Formal aspects of constructs

Range of Convenience: A construct's range of convenience comprises all those things to which the user would find its application useful.
Focus of convenience: A construct's focus of convenience comprises those particular things to which the user would find its application maximally useful. These are elements upon which the construct is likely to have been formed originally.

Elements: The things or events which are abstracted by a person's use of a construct are called elements. In some systems these are called objects.

Context: The context of a construct comprises those elements among which the user ordinarily discriminates by means of the construct. It is somewhat more restricted than the range of convenience, since it refers to the circumstances in which the construct merges for practical use and not necessarily to all the circumstances in which a person might eventually use the construct. It is somewhat more extensive than the focus of convenience, since the construct may often appear in circumstances where its application is not optimal.

Pole: Each construct discriminates between two poles, one at each end of its dichotomy. The elements abstracted are like each other at each pole with respect to the construct and are unlike the elements at the other pole.

Contrast: The relationship between the two poles of a construct is one of contrast.

Likeness end: When referring specifically to elements at one pole of a construct, one may use the term 'likeness end' to designate the opposite pole.

Contrast end: When referring specifically to elements at one pole of a construct, one may use their term 'contrast end' to designate the opposite pole.

Emergence: The emergent pole of a construct is that one which embraces most of the immediately perceived context.

Implicitness: The implicit pole of a construct is that one which embraces contrasting context. It contrasts with the emergent pole. Frequently the person has no available symbol or name for it; it is symbolised only implicitly by the emergent term.

Symbol: An element in the context of a construct which represents not only itself but also the construct by which it is abstracted by the user is called the construct's symbol.

Permeability: A construct is permeable if it admits newly perceived elements to its context. It is impermeable if it rejects elements on the basis of their newness.

Constructs classified according to the nature of their control over their elements

Preemptive construct: A construct which preempt its elements for membership in its own realm exclusively is called a preemptive construct.
This is the 'nothing but' type of construction - 'if this is a ball it is nothing but a ball'.

Constellatory construct: A construct which fixes the other realm membership of its elements is called a constellatory construct. This is stereotyped or typological thinking.

Propositional construct: A construct which carries no implications regarding the other realm membership of its elements is a propositional construct. This is uncontaminated construction.

General diagnostic constructs

Preverbal constructs: A preverbal construct is one which continues to be used, even though it has no consistent word symbol. It may or may not have been devised before the client had command of speech symbolism.

Submergence: The submerged pole of a construct is the one which is less available for application to events.

Suspension: A suspended element is one which is omitted from the context of a construct as a result of revision of the client's construct system.

Level of cognitive awareness: The level of cognitive awareness ranges from high to low. A high-level is one which is readily expressed in socially effective symbols; whose alternatives are both readily accessible; which falls well within the range of convenience of the client's major construction; and which is not suspended by a super-ordinating constructs.

Dilation: dilation occurs when a person broadens his perceptual field in order to reorganise it on a more comprehensive level. It does not, in itself, include the comprehensive reconstruction of those elements.

Constriction: constriction occurs when a person narrows his perceptual field in order to minimise apparent incompatibilities.

Comprehensive constructs: A comprehensive construct is one which subsumes a wide variety of events.

Incidental constructs: An incidental construct is one which subsumes a narrow variety of events.

Superordinate constructs: A superordinate construct is one which includes another as one of the elements in its context.

Subordinate constructs: A subordinate construct is one which is included as a elements in the context of another.

Regnant constructs: A regnant construct is a kind of superordinate construct which assigns each of its elements to a category o an all-or-none basis, as in classical logic. It tends to be non-abstractive.

Core constructs: A core construct is one which governs a person's maintenance processes.
Peripheral constructs: A peripheral construct is one which can be altered without serious modifications of the core structure.

Tight constructs: A tight construct is one which leads to unvarying predictions.

Loose constructs: A loose construct is one which leads to varying predictions but which retains its identity. Constructs relating to transition

Threat: Threat is the awareness of an imminent comprehensive change in one's core structures.

Fear: Fear is the awareness of an imminent incidental change in one's core structures.

Anxiety: Anxiety is the awareness that the events with which one is confronted lie mostly outside the range of convenience of one's construct system.

Guilt: Guilt is the awareness of dislodgement of the self from one's core role structure.

Aggressiveness: Aggressiveness is the active elaboration of one's perceptual field.

Hostility: Hostility is the continued effort to exort validational evidence in favour of a type of social predication which has already been recognized as a failure.

CPC cycle: The CPC Cycle is a sequence of construction involving in succession, circumspection, preemption, and control, leading to a choice precipitation the person into a particular situation.

Creativity cycle: The creativity cycle is one which starts with loosened construction and terminates with tightened and validation construction.

APPENDIX B

KEY - DIAGRAMS (Figures 10, 12, 18, 20, 23, 26, 29, and 32)

People Classification

SFIG - Self Formed Interest Group
SEM - Seminar
CA - Casual Acquaintance
PNE (NPE) - Paid Non-Expert
PE - Paid Expert
AE - Acquaintance Expert
ANE - Acquaintance Non-Expert
IE - Intimate Expert
INE - Intimate Non-Expert

KEY - DIAGRAMS (Figures 11, 13, 15, 17, 21, 24, 27, 30, and 33)

Occupational Groups

F.Conf - Farmers Conference
DG - Discussion Group
FM - Farmers
EO Private - Private Farm Consultants
EO DAV - Department of Agriculture (Victoria) Extension Officers
EO NZDB (EODB) - N.Z. Dairy Board Consulting Officers
EO MAF - N.Z. Ministry of Agriculture and Fisheries Farm Advisory Officers
EO L&S - Lands and Survey Department Extension Officers
DAO - MAF - Dairy Advisory Officer - N.Z. Ministry of Agriculture and Fisheries.
AC MAF - N.Z. Ministry of Agriculture and Fisheries Agricultural College - Flock House.
DI MAF - N.Z. Ministry of Agriculture and Fisheries Dairy Inspector
PRO - Professional
PROL - Lawyer
PROV - Valuer
PROa - Accountant
BM - Bank Manager
RB - Rural Bank
MP - Member of Parliament
LB - Local Business
LA - Local Authority
F - Family
Fw - Farmer's wife
Ps - Farmer's sister
Fb - Farmer's brother
Fp - Farmer's parents
Ff - Farmer's father
Fwp - Farmer's wife's parents
Fwf - Farmer's wife's father

275
Minerva Access is the Institutional Repository of The University of Melbourne

Author/s:
Phillips, Thomas Ian

Title:
The development of methodologies for the determination and facilitation of learning for dairy farmers

Date:
1985

Citation:

Publication Status:
Unpublished

Persistent Link:
http://hdl.handle.net/11343/38478

File Description:
The development of methodologies for the determination and facilitation of learning for dairy farmers

Terms and Conditions:
Terms and Conditions: Copyright in works deposited in Minerva Access is retained by the copyright owner. The work may not be altered without permission from the copyright owner. Readers may only download, print and save electronic copies of whole works for their own personal non-commercial use. Any use that exceeds these limits requires permission from the copyright owner. Attribution is essential when quoting or paraphrasing from these works.