1 METHODOLOGY AND CONCEPTUAL FRAMEWORK BEHIND THE RESEARCH

1.1 METHODOLOGY

The project, started in July 1988, was conducted on a part-time basis. The initial task (later expanded) was to develop a marketing plan to promote the outputs (graduates) of the Faculty of Agriculture and Rural Development (hereafter, the 'faculty') to appropriate employers.

At the outset, the project was not seen as one of inordinate difficulty: the researcher's many years of experience as a practising marketing manager & planner would ensure a successful outcome. This assumption was quite wrong. Exposed to the systemic process, the researcher's long-internalized conventional 'expertise' in marketing was found inadequate. Re-learning and expanding the conceptual base of marketing planning was slow and painful, but of singular value on a personal development level.

A 'problem issue' having been identified, the research took on the nature of an holistic investigation of a specific (marketing) activity of the system, rather than an investigation of the system itself, with subsequent identification of various 'problem issues'.

The guiding principle used throughout the analysis was: **continue to interrogate the situation until it confesses its linkages, strengths and weaknesses.**

This was accomplished within Wilson's framework that the methodology "needs to be appropriate to the situation and to the particular personality of the analyst."(6) At the conclusion of the project, the researcher has internalized Checkland & Scholz's dictum "...that SSM is methodology (the logos of method, the principles of method) rather than technique, or method. This means that it will never be independent of the user of it, as is technique." (7)

The methodology used was Checkland's conventional seven-stage model of Soft Systems Methodology (SSM)(see Figure 1.1).

**Figure 1.1**

![A Model of Checkland's Methodology](image_url)

_A Model of Checkland's Methodology_

This particular construct recognized that two streams of activity flowed from Step 2 in the model: The Problem Situation Expressed. The first stream (with which this project is solely concerned) was to develop a plan to market the faculty outputs (graduates). The second stream recognized the role of curriculum development: the faculty would need to identify, consider, and agree (or not) to provide resources for selected competencies that were found (over time) to be desired by employers and either not present or at a low level in graduates; e.g., management theory, financial analysis, international trade. It is hoped that faculty personnel involved with curriculum development will take up this latter on-going aspect of the research.

The cited Checkland methodology was followed, using a mix of methods deemed appropriate for each of the research stages. The process used allowed for the division of "...our subject into as many parts as are necessary in order to make a complete inventory of each one of them...", whilst still acknowledging that "...such a division is only a methodological expedient, created by ourselves, and that man [the system] remains indivisible." (8) (emphasis added)

In the study, there is no differentiation of UG1 & UG3 graduates. Richard Bawden (Dean of the faculty) and John McKenzie (Course Co-ordinator) (9) took the view that the major discriminator between these students was time [degree students (UG1) - 3 1/2 (now 3) years; associate diploma students (UG3) - 2 years], that they both learned in an environment of systemic experientialism and that their capacity to transact with the physical and social environment was a matter of degree; UG3 direct and UG1 with others who will go on to transact directly. In that the learning environment for both categories of students was the same no differentiation was necessary for the purpose of this study.

The broad research stages were:-

Stage I: The situation in its environment was rich-pictured. The focus was that of an investigator examining a well defined faculty marketing task. Issues were identified that would be the subject for research in Stage II. (See Section 2-The Research Findings)

Stage II: Secondary data and human resources were accessed to more fully explore the themes identified in Stage I. Primary research areas were identified.

Having identified that current data on student attitudes, aspirations, etc., was needed, students Brent McDonald and Stephen Harris were invited to share this aspect of the study. This was in October '88 and Brent & Stephen reviewed the already assembled data over the long-vacation. Work was begun in earnest when lectures re-commenced in 1989. It soon became clear, after discussion amongst ourselves and with staff, as well as from understanding emerging from the research that:-

(a) the project of 'marketing the faculty outputs' could no longer proceed in isolation; that situation was seen to be clearly intertwined with the programme to recruit new students (though it was not then realized that the marketing plan would need to embrace this programme), and with existing student and staff attitudes and,

(b) in order to have guidance as to feasible outcomes and to eventually have implemented desirable courses of action (identified by the research), it would be necessary to have influential academic staff own the 'problem'.


(c) in developing CATWOE and the root definition for the system that would effect the transformation process, it was realized that the existing and continuing ability of the faculty to form desirable graduates would need to be taken as a given.

Stage III: For influential staff to own the 'problem', it was decided to try to establish an Action Research Team (ART), the members of which (based on theory development) should represent not only scholarly expertise and faculty commitment, but should also hold appropriate executive posts so as to be empowered to cause agreed actions to be implemented.

We (the researcher and the two students) were fortunate to obtain the whole-hearted consent to join the A.R.T. of Richard Bawden (Dean of the faculty), Bob Macadam (Associate Dean-Academic), and Don Lundie-Jenkins (Senior Lecturer and Manager of the Outreach Programme). This A.R.T., with such membership, had the expertise, had direct responsibility for the areas being studied, and, most importantly, had the executive power to implement agreed-upon action(s). These factors were consistent with theory, then in development, concerning bases of power and its representation in ARTs. At our first meeting in March '89, the A.R.T. identified a truly key issue for exploration: What is the 'Essence' of a Hawkesbury Agriculturist? The researchers (McDonald, Harris & Potts) undertook to study the issue and to report back to the A.R.T.

Stage IV: The existing data on competencies desired by employers in general was re-matched with the profile developed for our 'typical' graduate. Staff and students were questioned in this process.

The conclusion reached, as to the 'Essence' of our graduates, was of such a nature that a need now emerged to extend the initial objective ('market the faculty outputs') to include the student recruiting (Outreach) programme in the marketing plan; both issues to be united by a common theme - the one supporting/reinforcing the other.

Stage V: The relevant data were used to create a draft marketing plan that was submitted in January, 1990 to the A.R.T. for debate. Agreement was reached that Stage VI (preparation of a final marketing plan) should commence.

Stage VI: After substantial progress had been accomplished in Stage VI, the work was suspended; new information (concerning a body of research going to theories of how school leavers make a career choice) was found to have a fundamental bearing on the plan. The information derived from a review of the new research findings was studied, in an iterative way, for its influence on the conclusions of the previous research findings.

The draft marketing plan was revised and the final plan prepared. (See Section 3 - Desirable & Feasible Changes.)

Stage VII: Commences with the submission of this complete report to the A.R.T. for debate leading (hopefully) to implementation of the marketing plan by the faculty. (See letter of transmittal of 13/6/1993 (page (1)))
1.2 ESTABLISHING THE SYSTEM'S PURPOSE

The analyst taking an infological perspective is asked to explore the 'information' needs of the system against a background of the specific tasks that the system needs to perform. "Information requirements are derived in order that the resulting information systems can provide the [decision making] support necessary for these tasks." In an ideal situation, tasks would be clearly and accurately defined and ranked, so that the needs analysis would be straightforward. (10)

Thus, a fundamental starting point for systems analysis is the definition of the tasks that the system (or subsystem) must perform. We must ask how, in a human activity system, are the tasks of the system established, and how are they prioritized? Management theory takes the view that an organization's tasks (of all sorts) are interdependent but, more importantly, are each directly dependent upon the organization's superordinate goals (or shared values) (11). Superordinate goals are defined as: "The significant meanings or guiding concepts that an organization [has and] imbuers in its members." In systems' parlance, Superordinate Goals equals Purpose.

It is therefore necessary to conclude that a system's tasks are a function of the superordinate goals (Purpose), and that these goals are a product of human value judgements. This must give cause for pause!

We are aware that human value judgements are greatly influenced by two factors; the one is personal bias (unconscious or not), the other is a reflection of the relationship between man and his social environment. Of the former, Vidal (12) observed that: "...of course to banish prejudice is a contradiction in terms since, by definition, prejudice means prejudgement, and though time and experience usually explode for us all the prejudices of our first years, they exist, nevertheless, as part of our subconscious, a sabotaging irrational force, causing us to commit strange crimes indeed, made so much worse because they are often secret even to ourselves..." (emphasis added)

Of the latter, Carrel (13) believed that:-
"Each human being occupies a certain place in his group. He is shackled to it by mental chains. His position may appear to him as more important than life itself. If he is deprived of it by financial losses, illness, persecution, scandal or crime, he may prefer suicide to such a change. Obviously, the individual projects on all sides beyond his anatomical frontiers." (emphasis added)

It would seem clear that an analyst of a human activity system must early, and as a priority, dedicate time and resources to a discovery of its purpose, or risk committing grave errors in 'problem' identification; thus, generating faulty situation improvement suggestions. Analysts should be particularly alert to the issue of purpose discovery when they are in a situation of working, not with the organization's owner(s), but with a manager who is not a director and thus, not always privileged to know the organization's purpose in detail. It is axiomatic that discovery of purpose can only be realized by interrogation of the system's owners or, in the case of a public company, of the board and managing director.
Even so, statements as to purpose, even from the most appropriate source(s), can only be validated by checking that internal evidence reflects a patterning between the stated purpose and actions taken. (Discussed later in Section 1.3(b))

Analysts must also be able to make a distinction between activities undertaken to satisfy, on the one hand, short-term (tactical) objectives and, on the other hand, long-term (strategic) purpose. As an example, consider the case (personally known to the researcher) of a stud cattle owner. Culls are road-freighted to the sale yards. The owner attends the sale and inspects the other offerings. If the owner feels that any competing lot will attract a price better than he can expect for his own cattle, he withdraws from the sale and ships the cattle back to the property.

Such economic inefficiency is only understandable in the context of long-term strategic purpose. A stated component of the strategy is to maintain his stud's reputation for always (or nearly) 'topping-the-sale'. This has generated a market perception of the value of the stud's offerings that transcends the economic cost of maintaining that perception. In marketing terms, the costs are probably better viewed as a charge against promotional costs. Further analysis also explains why this owner is not attracted to the computer assisted livestock marketing (CALM) system; he cannot physically inspect, and come to a judgement about, the competitive offerings.

Only a psychological examination could determine how much of this long-term strategic purpose has roots in the owner's desire to be seen by his peers in the market to be highly successful. In this case it is immaterial; there is a valid reason in market development terms. However, if the market changed and failed to respond, and the owner persisted with the procedure, then we could rightly assume that the procedure is more rooted in human value judgement (ego) than in strategic purpose.

Checkland and Casar (14) have elegantly analyzed Sir Geoffrey Vickers work on 'appreciative' [as opposed to 'purposeful'] human activity systems. A clear distinction is made between appreciative systems and Soft Systems Methodology (SSM) constructs. The former is regarded as being a real-world system, operated by key personnel under the largely unconscious influence of their tacit knowledge (and prejudices). The latter is regarded, not as models of real-world action, but as "models relevant to a debate about possible human action." The analysis of the force of the influence of "Standards, of fact and values: good/bad, acceptable/unacceptable" on the operation of a real-world 'appreciative' system, reinforced our (above described) conclusions as to the importance of early exploring the system's 'purpose'.

The nature of the faculty's 'purpose', as disclosed in the 1989 Course Review Documents (15) covering degree and associate diploma courses will be discussed in Section 2-The Research Findings.
1.3 BOUNDARIES AND RICH-PICTURING

Ferguson (16), writing on General Systems Theory, managed to encapsulate much of the holistic concept contained in the faculty paradigm by saying: "A single variable [in a system] can be both cause and effect. Reality will not be still. And it cannot be taken apart. You cannot understand a cell, a rat, a brain structure, a family, or a culture if you isolate it from its content. Relationship is everything." (emphasis added) As analysts we learn to approach systems analysis in a fully holistic way. The Soft Systems Methodology (SSM) approach of rich-picturing human activity systems (as the first step) is the outcome of this.

And yet, the researcher personally (and many of his students) initially had difficulty in setting the boundary/limits to the rich-picture of the system (or sub-system) under analysis. At the same time, it was observed in many projects that there was a tendency for analysts (not always neophyte) to become more involved with the non-human factors of the issue, to the overall detriment of the analysis. Reflection indicated that there was a methodological need to govern the engine, and better direct the steering of the lorry of holistic inquiry. But how was this to be done?

Checkland & Scholes (17) take the view "that it is probably worth trying to find ways of formally operating the learning cycle ...". The following is an attempt to develop such a formal but systemic process.

Bertrand Russell (18), in his critique of Hegel's concept of holism, raised, as the basis for discussion, the statement: 'John is the father of James'. Russell's view was that, according to Hegel, before you can understand this statement you must determine who John & James are and, in your endeavour to say what you mean by first John and then James, "you will be led to take account of the whole universe, and your original statement will turn out to be telling you something about the universe, not about two separate people, John & James."

But, Russell posited, if we first take the case of John, then "...in order to use the word 'John' correctly and intelligently, I do not need to know all about 'John', but only enough to recognize him." (emphasis added) Russell expanded on this concept with: "If a certain thing has a certain collection of qualities, and no other thing has just this collection of qualities, then it can be defined as 'the thing having such-and-such qualities."

It is this last concept of the holistic investigation that leads us to the idea of setting boundaries to the inquiry that, though not telling us everything about the system being studied, does allows us to identify that system and its relationships so that it emerges from the particular environment in which it is immersed with its unique properties defined.

To construct a model of the systemic investigation process that complies with first, Russell's suggestion and second, the perceived need to more effectively focus on the human aspects of the system, recourse was made to Wilson's (19) concept of separating slow-to-change structure and continuously changing process.
For our purpose, structure is identified as the **physical** aspect, and process as the **humanistic** aspect of any human activity system (HAS).

Physical analysis is related to the system in its environment and describes activities, means of accomplishing these, measures of economic & productive efficiency, and key environmental forces affecting the system. It is essentially a **hard** systems analysis, in that the analysis is descriptive and takes the *means-end* approach described by Flood and Jackson.(20)

Humanistic analysis is related to the motivation, capabilities, and organization of the humans owning and operating the system. As indicated above, it is felt that this area needs more careful attention (study). It is a **soft** systems analysis, in that the underlying concept is "...that problem situations arise when *people* have contrasting views on the 'same situation'."(20) (emphasis added)

It was almost twenty years ago that Alexander (21) observed that management was left "...grappling with a world of future possibilities, of people, politics and policy. As it happens, these are the most important realms of all at a time when efficiency of operation *weighs less in survival value than the ability to handle change*."(emphasis added)

It is posited that a comparison of a clearly stated physical (hard) analysis with a more complete humanistic (soft) analysis will more efficiently allow the isolation of mismatches, and lead to better recommendations for situation improvement through a better definition of the 'problem(s)'.

In 1984, Bawden et al (22) published a generalized model of a farming system which showed its major functional subsystems, the dynamic environment in which it operates and with which its human managers transact. This model became known (because of its shape) as the Peanut Model.

To achieve the **physical analysis**, and to widen its application to all HASs and not just farming systems, a modified Peanut Model, (see **Figure 1.2** - over page) was developed. The **humanistic analysis** is undertaken by using a management model: the McKinsey 7-S Framework.(23) See **Figure 1.3** - over page.

In practice, the process of system interrogation proceeds thus:-

(a) **Physical Analysis**

The system is questioned on all the parameters included in the model (**Figure 1.2**), including a search for key influencing forces in the micro and macro environments, in order to determine 'what is'. Any area that generates dis-ease for the analyst in the first resolution should be subjected to a 2nd/3rd resolution. If the 'Purpose' is stated, it is carefully noted; it must be subjected to more careful study in the humanistic analysis. The above reference to environments also contains the management concept of obtaining data on similar operations in the specific industry, so that the system is not studied in isolation, but against a comparable industry yard-stick.(24) NSW Agriculture
Figure 1.2: A Generic Model of an Enterprise in its Environments
Figure 1.3: The McKinsey 7-S Framework

Figure 2-15
McKinsey 7-S Framework
produces the comparative report 'FarmCheque' (for various types of primary producers) and several banks publish industry comparative financial analyses; for example the ANZ has a quarterly report of key economic indicators by industry (it may be accessed for enterprises which provide goods or services to primary producers). There are many other sources, human and printed, such as: the Australian Bureau of Agricultural & Resource Economics (ABARE), Chambers of Commerce; Industry Associations & regional groups; the National Farmers' Federation and its state member groups; and statutory marketing authorities like the Australian Meat and Livestock Corporation.

At the conclusion of the analysis, the report will comprise an audit (physical rich-picture) of the system that covers all aspects that go to describe the 'what is'. In depth analysis will only be concentrated in areas generating dis-ease. In this way, the analysis will be complete (structured) whilst only being 'blown-out' in particular areas which are consciously selected to require such treatment. In short, the report will include, and go beyond, the parameters chosen by Molloy; in his survey: "Subjective and Economic & Production Efficiency Measures". (25)

(b) HUMANISTIC ANALYSIS
We now turn our attention to the humanistic factors which, in the actual process of analysis, is not a sequential step, but goes forward in parallel with the Physical study. When completed, we will make a comparison with the Physical report (the 'what is') and start to comprehend 'why it is so'. Thereafter, we will have a reasoned basis for purposeful action towards situation improvement. This part of the analysis concerns itself with the earlier discussed real-world issues that Vickers addressed as 'appreciative systems'.

During the Physical study the analyst will certainly have acquired some ideas about the human factors operating in the system. So long as no intellectual leaps as to cause & effect have been made, and the factors only noted for study at the appropriate time, no damage to the final analysis will have been done. It is precisely because the human side of the analysis is so critical, that we need to approach it in a rigorously structured way. As much as is possible we need to eliminate the contamination of pre-judgement.

The McKinsey 7-S Framework (Figure 1.3) obliges the analyst to make a structured study of the system; it demands answers to 6 interdependent parameters all of which are intimately influenced by a central 7th parameter: Superordinate Goals (or Purpose). A key observation concerning the 7 parameters is that,

"...successful organizations and effective management involve not only correct choices within the area of each S [of the seven], but an effective patterning among them, a fitting together that helps the whole organization work." (26)

Purpose (or Mission) is regarded as the concise statement of an organization's "main, transcending reason for existence." (27) It is thus essential to first clearly define Purpose, because study of the other six parameters must evidence congruity with it if the system is to operate efficiently and achieve the Purpose. The model asks the analyst to address the following parameters:-
PARAMETER | DESCRIPTION
---|---
Superordinate Goal Strategy | The main, transcending reason for existence of the system. Plan or course of action leading to the allocation of the system's resources, to reach, over time, the Purpose.
Style(*) | Characterization of how key managers behave in achieving the Purpose and location(s) of executive authority to implement change.
Structure | Definition of how the system is structured from a management perspective: functional, decentralized, etc, and staff interaction.
Systems | Proceduralized reports & routinized processes to assist management; records, information sources, calendar of events, staff meetings, etc.
Staff | Demographic description & enumeration of personnel categories in the system.
Skills | Distinctive capabilities of key personnel/the system as a whole.

(*) Two very important issues (amongst others) are contained in the concept of 'Style'; they will be separately considered below as Sections 1.5 and 1.6.

Now, it is possible for an analyst to separately address the results of the Physical and Humanistic studies, and be able to identify situations requiring obvious remedial action. However, it is only when the larger question is addressed, does the appearance (or not) of a metaproblem(s) become evident. That larger question is: Are the Humanistic findings congruent with the Physical?

It is posited that, by using the structured approach described above, the analyst will have the information necessary to reach a judgement. More, the process will have ensured that all the system will have been fully questioned, but that only areas of dis-ease will have been examined in some detail. In this way we impose a limit to, a more structured focus on, and greater attention to humanistic factors in, the questioning of the system.

1.4 A SYSTEMS MODEL OF THE MARKETING PROCESS

In Section 1.3 a model of an HAS in its environment was discussed (Figure 1.2). This being a project that focuses on the marketing activities of the faculty, it was deemed essential to develop a systems model of marketing that could be used as a mental construct of the activity. This section turns its attention to the Tactical Subsystem (SS) of Figure 1.2 in order to derive a model that, in a systemic sense, formalizes the approach that a systems analyst (marketing) could employ as a mind-set when examining a real-world situation. It is seen that the Tactical SS contains several disparate middle management functions; viz. Personnel, Finance, Public Relations, Research & Development, and Marketing. The force binding these operations into an interdependency is that the Tactical SS translates long-term strategic goals (formulated in the Strategic SS) into short-term operational objectives and provides support services that facilitate and coordinate the Operational SS, plus providing inputs and handling outputs.
A more detailed discussion of management theory covering these issues will be found in The Research Findings, Section 2.2.2.

The marketing model, **Figure 1.4** (over), does not stand alone. It presupposes that the complete analyses described in **Figures 1.2 & 1.3** have been completed, and that the **Marketing SS** has been identified as a key area of real-world concern. That is, both the key Physical and Humanistic factors (and their interactions) have been located.

Implicit in the Systems Model of Marketing (over page), **at all levels of resolution**, is the concept that each model contains a management decision process. This 'process' is the unseen direction that is contained in Stewart's concept of "the universal characteristics of management activities"(28); depicted thus:

**Figure 1.5: The Universal Characteristics of Management Jobs.**

[Diagram of concentric circles labeled Constraints, Choices, Demands]

Explaining the **dynamic nature** of the model, Mukhi(29) observes: "Because the model pictures the subjective experience of a living reality in which demands, constraints, and choices change over time, the size and the particular contents of the rings and the centre change over time. **Managers who feel more passive may see demands and constraints as immutable and allow them to shrink their area of choices. Managers who feel autonomous and capable...may expand the area of choice, creatively diminishing the effective range [impact] of demands or constraints.**" (emphasis added)

*It is thus again made clear that in nominally identical jobs in identical macro-environments, it is the human factor that needs intense scrutiny, in order to explain different outcomes of comparable human activity systems.* It is for this reason that, as was discussed earlier, we must investigate a particular system, not in isolation, but against a comparative background of other similar systems operating in the same industry.
A Systems Model of Marketing

The Enterprise as an Open System

The Tactical Sub-System

The Marketing Process

The Promotion Process
A Systems Model of Marketing (2)
1.5 THE ACTION RESEARCH MODEL AND ENVIRONMENTAL INFLUENCES

This topic is regarded as one of the key components of 'Style' referred to in the McKinsey 7-S model in Figure 1.3. It is considered essential for an analyst to have a clear concept of power bases in organizations, so as to understand data acquired, and to locate those individuals who will have authority for implementing agreed decisions.

The formal distribution of 'legitimate' power (that devolving to general or functional managers by virtue of their position) within the organization is described in management theory as 'vertical differentiation'. The power so awarded "is offset or reinforced by informal power & influence systems within the organization. These latter systems are not deliberately designed but emerge in response to the formal power structure, particular personalities, and organizational events. Thus, while senior managers allocate overall authority and responsibility throughout the organization, their decisions are bounded [moderated] by legal constraints, by tradition, and strongly affected by non-prescribed communication, emergent alliances, personal influences, and 'deals'."(30)

Internal influences on 'legitimate' power are enterprise specific, and they act to produce decisions of a 'sui generis' nature; i.e., peculiar, or unique to the enterprise. "Authority may be distributed among other interest groups such as external government departments, shareholders, ministers of the Crown, and trade union officials." (30)

Thus a manager's authority is moderated by internal (enterprise specific) and external influences. The analyst needs to be aware of both in order to understand how decisions to implement purposeful action are reached, why they are usually watered-down, and why (sometimes) they are simply abandoned. Here we will be more concerned with the sorts of external influence that can affect decisions.

Government departments police existing regulations issuing from Acts of Parliament; shareholders may demand the maintenance of historical levels of dividend payment despite a business downturn; ministers of the Crown devise and introduce new legislation that entrains a whole new series of regulations; trade union officials periodically make demands for wage/salary increases and/or for improved work conditions, or they may reject management proposals for changes to workforce practices.

Thus, the authority of management is also moderated by the external environments of the organization. It is therefore impossible for analysts or management to define desirable and feasible courses of action without exploring and taking careful note of those environmental forces that bear on particular situations.

External pressures (especially that of the Australian Confederation of Trade Unions [ACTU]) oblige organized labour at the enterprise level to enter participatory decision making with management in a less than open manner. There is a reluctance amongst union representatives to reach agreement with management on a course of desirable and feasible actions without prior consultation with the executive of concerned unions; this,
in case the agreement breaches one or other of the incredibly complex industrial awards, or is in conflict with the ACTU political agenda. The well known events in 1990, when the ACTU and the Victorian Trades Hall Council [THC] objected to the independent (enterprise) agreement reached between management and labour of the Shepparton (Victoria) fruit canning company, SPC Ltd.; and the forced renegotiation of the agreement, with THC representatives appearing before the Industrial Relations Commission, is a case in point.

In order to take into account such (above) influences on real world decision making, we need to elaborate some of our mental constructs so as to recognize what it is in particular situations that may be perturbing either the direction of the enquiry or its reasoned outcomes. We will accept as given the internal pattern of authority that gives an enterprise its unique framework of how situations are to be approached and decisions made.

The action researching system is depicted by Bawden (1989)(31), thus:-

Figure 1.6: A Structurally Coupled Action Researching System

In this construct (above), the co-researcher is the 'problem-owner' in the 'situation.'

The manager as co-researcher views the situation influenced by not only his own Weltanschauung (the individual's personal, particular view of the world)(32), but also by factors that may arise in any of his environments and for any reason; they may come to him as, for example, policy decisions from top management. Consider a manager building reserves to replace old plant. There is a business downturn and profits tumble. In order to maintain confidence in the company, the directors decide to maintain the current level of dividends to shareholders. There is insufficient profit available to do so; the reserve is raided. The purposeful action planned by the manager (replace old plant) can no longer (or only partially) be implemented. Influences on managers in either the private or public sectors can be depicted in Figure 1.7, (over page) thus:-
We may now consider the influence on the work force of organized labour; at least as it is evidenced in this country (Australia). Historically we must take into account that management must deal with each trade union that is represented within the labour force of a specific enterprise. Though this is changing to the Australian version of 'enterprise bargaining'; the former case is still much more prevalent than the latter.

We must also be aware that, due to the system of 'relativity' of employment conditions between different unions, any change in the conditions of workers belonging to one union will have a 'flow-on' effect for workers belonging to other unions represented in the enterprise. We must also take into account the union concept of 'demarcation'; i.e., where certain activities may only be executed by members of the union responsible for that specific activity. for example, on building construction sites, lifts may only be operated by members of a particular union, and no-one else. If, for any reason there is no member of that union available to operate the lift, the lift may not be moved, and work ceases.

Influences on the labour force, through the workers who are their union representatives, may be depicted in Figure 1.8 (over page) thus:-
Figure 1.8: ACTU Influence on Union Representatives within the Enterprise

\[(\mathcal{W}) = \begin{array}{c}
\text{WELTANSCHAUUNG 1, 2, ..., M}
\end{array}\]

We may now recast the action researching system thus:-

Figure 1.9: A Structurally Coupled Action Researching System (Modified)
Because of the adversarial culture of management-labour relations in this country, disputes (unless very carefully handled by management) quickly degenerate into a 'them & us' state, and representatives from a specific union(s) and/or from the ACTU are called in to negotiate with management. Referral of the matter to the Industrial Relations Commission (IRC), by either an employers' industry group, or by the ACTU, is the final step in the process. Thus, the action researching system degenerates to:

**Figure 1.10: Process in the Event of Breakdown of Negotiations Between Management and Labour**

The Japanese model is quite different. Negotiations proceed in an environment of Enterprise (as opposed to Trade) Unions, the action researching system can be represented thus:

**Figure 1.11: A Japanese Structurally Coupled Action Researching System**
One of the factors that gives the Japanese company such cohesion is the clear separation of 'them & us'. In Japan all workers in an enterprise regard themselves as 'us'; it is the outside competitors who are 'them'. We have not yet developed such a mind-set in this country. "There are over 70,000 unions in Japan, and most of them are enterprise unions, which means that they represent both the hourly and salaried employees of the particular company. Including the salaried employees is a marked departure from labour unions found in other countries."(33)

The Japanese process of decision making (Ringisho/Ringisei)(34) involves arriving at consensus from the bottom-up & is iterative (in the sense that new circumstances/data over time are fed into the process and the situation reassessed). When conducted in the non-adversarial company culture of 'us', such method of decision making closely approaches Wilson's concept of action research: "...that of simultaneously bringing about change in the project situation (the action) while learning from the process of deriving the change (the research)."(35)

Few would opine that Japan's economic successes have been built upon 'good luck'. Perhaps the factors of a consultative decision making process in an enterprise union (an 'us') environment, can help (amongst other factors) to explain their progress? Ferguson (1984) endorses this view of the beneficial effect of the 'us' environment in a world of increasing complexity, and quotes the view of a policy analyst that:

"If we think we are a large family, rather than a large factory, we will deal with these problems differently."(36)

In summary; the authority of managers, and thus the freedom to pursue a decision making process to its logical end of purposeful action, is moderated by external and internal forces. Many of these forces are general in the environment and affect competing companies equally (government regulations, industrial awards, taxes). There are however, moderating factors in the external environment that, being subjected to handling in a way that reflects internal management style and organizational culture, are organization specific. As such, these factors need particularly careful scrutiny by the systems analyst; whether the analyst is using hard or soft systems methodology. Thus, members of an ART must not only have the expertise and power to effect agreed-upon decisions, but also the managerial skills to negotiate the changes with the concerned employees who will be called upon to implement the changes.

1.6 THE DECISION MAKING PROCESS AND BASES OF POWER

This topic is the second key component of 'Style' referred to in the McKinsey 7-S model in Figure 1.3.

Checkland & Scholes (37) writing on "Political Systems Analysis" (or "Analysis Three" in the cultural analysis stream), have recognized that "In the last five years very many 'commodities' of [role-based] power have been observed in different situations." In their discussion of role-based power, they appear to have omitted consideration of how such power bases operate in influencing the decision making process & its outcomes.
There are elements of recognition of the effect of role-based power in their consideration of "Social System' Analysis"(38) (or "Analysis Two" in the cultural analysis stream); but in neither of these discussions is the topic teased-out. And it is considered vital that it should be.

Over Thirty years ago, French & Ravens (39) identified a number of power bases which are in force "whenever people interact in a social context, including any sort of group or organization setting." [emphasis added] They identified several key bases of power that come into play in the group decision making process; they are:

"Reward Power" - Ability to influence others because you control monetary, social, political, or psychological rewards that they desire

Coercive Power - Influence comes from the ability to provide monetary or other punishments to those who do not cooperate

Referent Power - Others comply with your wishes because they like you. This attraction is based on personality, charisma, and persuasive ability

Expert Power - Influence is rooted in one's expertise regarding the issue under question. A person achieves power because others perceive that he knows more than anyone else about the problem at hand

Legitimate Power - Influence is based on one's formal position or title. The group or organization has formally granted the individual authority in some decision area

Morris in 1988 (40) drew upon French & Ravens work and on Bonoma's of 1982 (41) and synthesized their findings into a description of the decision making process in the area of his interest: the organizational buying centre. He defined six roles within the buying centre (which he acutely referred to as the Decision Making Unit [DMU]).

Dunphy (42) examined these six roles in the DMU and subtly modified them; he removed the focus of 'buying' for the industrial organization and replaced it with a DMU responsible for organizational decision making in general. Dunphy additionally made an important change by introducing the concept of decision making stages; i.e., initiation, debate, and implementation. [See Section 1.7 for a discussion of implementation]

It is worthwhile quoting extensively from Dunphy, as he succinctly describes the separate roles & their key functions in the DMU:

"We have developed a systematic classification of roles that contribute directly to group task performance [see his Exhibit 6.5: included over for reference as our Figure 1.12]. These roles relate to the process of group problem-solving, decision making, and implementation. The "initiator" activates and energizes the group, the "expert" introduces information and data, while the "evaluator" moves the group toward reaching a decision. The "procedural technician" ensures that the group pays attention to detail and legitimate constraints...and the "implementer" ensures that the decision is translated into action. He is assisted, if necessary, by the "representative" who handles diplomatic relationships with other individuals and groups whose input is needed or who might be affected by the decision. To be effective a work group needs this full range of roles, although one individual may perform several roles or a role may be shared by several members. The most effective groups we have encountered have members who can shift their role performance across the spectrum as demanded by the task at hand and the phase in the problem-solving process."
### EXHIBIT 6.5
TEAM TASK ROLES AND FUNCTIONS

<table>
<thead>
<tr>
<th>Category</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The initiator</strong></td>
<td>1. Most active in taking initiatives on the group task and has his initiatives accepted.</td>
</tr>
<tr>
<td></td>
<td>2. Defines goals and objectives for the group.</td>
</tr>
<tr>
<td></td>
<td>3. Directs others to undertake action related to the task and gains their compliance.</td>
</tr>
<tr>
<td></td>
<td>4. Gives acceptable suggestions to others about how to do the job.</td>
</tr>
<tr>
<td></td>
<td>5. Is usually most spoken to when the group is engaged on its task.</td>
</tr>
<tr>
<td><strong>The expert</strong></td>
<td>1. Has expertise relevant to group needs and goals.</td>
</tr>
<tr>
<td></td>
<td>2. Offers this expertise to the group or is asked to provide it.</td>
</tr>
<tr>
<td></td>
<td>3. Acts in an advisory capacity, feeding in task related data.</td>
</tr>
<tr>
<td></td>
<td>4. Maintains a &quot;neutral&quot; stance in internal group conflict.</td>
</tr>
<tr>
<td></td>
<td>5. Is respected by group members.</td>
</tr>
<tr>
<td><strong>The evaluator</strong></td>
<td>1. Gives opinions on issues raised or on the way the job is being done.</td>
</tr>
<tr>
<td></td>
<td>2. Clarifies and interprets issues.</td>
</tr>
<tr>
<td></td>
<td>3. Encourages the group to reach agreement and make a decision on issues at hand.</td>
</tr>
<tr>
<td></td>
<td>4. Exercises control over the group process and over the roles performed by group members.</td>
</tr>
<tr>
<td><strong>The implementer</strong></td>
<td>1. Works actively to see that the group's decisions are effectively implemented.</td>
</tr>
<tr>
<td></td>
<td>2. Is concerned with practical details, timing and methods.</td>
</tr>
<tr>
<td></td>
<td>3. Is viewed as consistent, conscientious, and reliable by other group members.</td>
</tr>
<tr>
<td><strong>The procedural technician</strong></td>
<td>1. Ensures that the group operates on the basis of established order, such as rules, agendas, and meeting procedures.</td>
</tr>
<tr>
<td></td>
<td>2. Pays close attention to legal and constitutional details.</td>
</tr>
<tr>
<td></td>
<td>3. Draw the group's attention to precedents, identifies oversights, omissions and errors.</td>
</tr>
<tr>
<td></td>
<td>4. Is seen as safe and conservative by other group members.</td>
</tr>
<tr>
<td><strong>The representative</strong></td>
<td>1. Acts as group representative and is accepted as such by others.</td>
</tr>
<tr>
<td></td>
<td>2. Speaks &quot;for the group&quot; as a whole and for those in it.</td>
</tr>
<tr>
<td></td>
<td>3. Acts as group spokesperson with other external individuals or groups and filters information from these others to the group.</td>
</tr>
<tr>
<td></td>
<td>4. Is approached by group members for information on outside events and activities.</td>
</tr>
<tr>
<td></td>
<td>5. Conducts negotiations with others on behalf of the group.</td>
</tr>
</tbody>
</table>
We have also encountered unbalanced work groups where significant roles are omitted, for example, where first rate decisions are made but where the absence of implementers means that the decision is never carried through into action. Similarly groups full of initiators and experts, but lacking evaluators, can provide an exciting experience, but fail to reach decisions at all. **A balance in task roles is important.**" [emphasis added]

It can be fairly concluded that attention to the preceding is of fundamental importance in any systems research, and critically so when SSM and Action Research is involved.

It seems that the analyst has two tasks to accomplish:

**Task 1.** Question if Dunphy's six above defined roles are present in the DMU selected to address the situation. And, if not, act to include appropriate actors to fill missing roles.

**Task 2.** Identify the individuals holding the five bases of power identified by French & Ravens; especially the holder(s) of Expert and Legitimate Power.

There is one additional refinement in the decision making process that the researcher has found to be a valuable means of both accelerating the process and of having decisions actually implemented. Some real world situations are at the functional management level and, using linear thinking, the DMU is set-up by the company. It may involve representatives in only one division or department of a company; i.e., from the unit that is experiencing the 'problem'. Systems thinkers know that such reasoning is dangerous; other departments or divisions will become involved either in the process or in the implementation (or effects) of the reasoned outcomes. In such a situation, if general management cannot be involved directly and from the start, it must be agreed that the highest possible representative of general management (as opposed to functional management) must be involved *ex officio* in, and receive copies of all the minutes of, meetings of the DMU. In this way, general management can act promptly when it becomes apparent that representatives of other appropriate departments or divisions are needed in the DMU.

Of course, when the problem is seen at the outset to involve several divisions, the members appointed by top management to the DMU will reflect this. However, unless top general management is included in the DMU from the outset, the same procedure holds: an *ex officio* appointment should be made.

**1.7 MANAGING THE IMPLEMENTATION OF AGREED DECISIONS**

In Section 1.6 attention was drawn to Dunphy's observation (42) that every DMU needed an "implementer" to ensure that decisions would be translated into action. But he could equally have observed that it is at precisely this stage [when surety of the correctness of the contemplated action is reached] *that most decisions are lost!*

Drucker (43) observes that "It becomes suddenly quite obvious that [the outcome of] the decision is not going to be pleasant, is not going to be popular, is not going to be easy. It becomes clear that a decision requires courage as much as it requires judgement."
He invites management [it applies to analysts writing their reports as well] to "act or do not act; but do not hedge or compromise." "That is the one thing that is always wrong, and the one sure way not to satisfy the minimum specifications, the minimum boundary conditions."

Implementation not only requires courage, it requires careful process. And that is another common stumbling block. Drucker (44) has expressed great concern about the lack of management’s formal attention to any process for implementing decisions; he acknowledges that converting the decision into action is enormously time consuming, but so essential that "...no decision has been made unless carrying it out in specific steps has become someone’s work assignment and responsibility. Until then, there are only good intentions."

Drucker goes on to urge the most careful consideration of the steps that need to be taken in order to effectively implement the action. He recommends that certain searching questions need to be put to and conscientiously answered by management; thus:-
1. "Who has to know of this decision?"
2. "What action has to be taken?"
3. "Who is to take it?"
4. "What does the action have to be so that the people who have to do it can do it?"
"The first and the last of these are too often overlooked - with dire results."

For systems analysts the first question is answered relatively easily, by recourse to the model(s) describing the extent of interconnectedness of the purposeful action proposed. Answers to Questions 2 & 3 fall-out of the analysis.
The fourth question is rather more difficult; it involves further probing of management to determine two sorts of data:-
a. do the people chosen to implement the decision have the ability (and the delegated authority) to do it? If not, what to do?
b. the appropriate person (people) having been chosen, what further action does management need to take? Relieve him/her (them) of normal duties? Relocate? Provide logistical support? Change his/her (their) measures of efficiency in the new job? Change the basis of compensation?

Neither of these questions are without solution, but they are often (usually?) neglected. What is required of the analyst is to develop the discipline always to ask the questions.

Drucker (45) concludes by emphasizing how necessary it is for management to take an integrated view of all these matters; thus:
"All this becomes doubly important when people have to change behaviour, habits or attitudes if a decision is to become effective action. Here one has to make sure not only that responsibility for the action is clearly assigned and that the people responsible are capable of doing the needful. One has to make sure that their measurements, their standards for accomplishment, and their incentives are changed simultaneously. Otherwise, the people [chosen for implementation of the action] will get caught in a paralysing internal emotional conflict."
From the discussions in Sections 1.5, 1.6, and 1.7 (above) it can be fairly concluded that the selection of members of the ART for this project was guided by theory development. Who had the expertise, the commitment, and the appropriate 'power bases' so as, not only to comprehend fully the implications of the findings, but also had the authority and responsibility to implement agreed decisions in specific areas?. As Section 2, The Research Findings, will show, change is especially called for in the Outreach area, and a new monitoring/action mechanism is called for in the curriculum area. The getting-together in the one ART of the Dean, the Associate Dean (Academic), and the manager of Outreach was not unintentional.

1.8 THE HAWKESBURY SPIRAL REVISITED

The integration of the Kolb Cycle with the Hawkesbury Holistic-Reductionist continuum of problem-tackling methodologies has been described and modelled by Bawden (46). (See over, Figures 1.13 & 1.14; these are Figures IV & V in Bawden's cited work.)

There are two aspects of the integrated model (Figure 1.14) where difficulties have been experienced (personally) and observed (in students), they are:

1. It is not difficult to first conceive from the model that a choice of only one of the four methodologies (soft systems, hard systems, technology, or science) is available at any one time to solve a 'problem issue'. It is not until later, with experience, that realization comes that a problem situation might require any or all of the cited methodologies to be used. Between initial exposure and final realization, confusion reigns.

2. There is no problem in understanding the Kolb Cycle. What is hard to grasp at an early stage, is the power of this learning paradigm to drive and direct the process of analysis.

Much thought has been personally given to finding a model to clarify the above issues. And then, a new type of corkscrew was seen, and a "solution" was unveiled.

Depicted in Figure 1.15 (over) is a first attempt at re-modelling Figure 1.14.

The model, it is thought, does impart the power of the Kolb Cycle; it emphasizes it by referring to Kolb’s Grip (on the situation).

Again, the model visualizes the four problem-tackling methodologies as a sort of quadruple helix; a cross-section at any level evidences that each of the four methodological streams are present (available for use) throughout.

The revised model may serve students in the faculty to understand at an earlier time, and so, better use the important conceptual framework contained in the 'Hawkesbury Spiral'.
Figure 1.13: Comparison of the Experiential Learning Model and the Problem-Solving Process

![Diagram of Experiential Learning Model and Problem-Solving Process]

Figure IV: Comparison of the Experiential Learning Model and the Problem-Solving Process
(After Kolb 1984)
Figure 1.14: The Hawkesbury Spiral of Problem-tackling Methodologies

CONCEPTUAL WORLD

Root definitions generated
Conceptual models constructed
Models compared with situation
Desirable & feasible changes debated
System described
System modelled
Model manipulated
Solution alternatives generated
Solution alternatives selected
Appropriate solution(s) tested
Causal relationships hypothesised
Concept modelled
Active experimentation
Primary observations made
Conclusion validated

REAL WORLD

Themes & roots identified
Rich picture
Changes implemented
System identified
Action implemented
Problem reduced
Problem explained
New problem situation experienced

SOFT SYSTEMS

HOLISM

REDUCTIONISM

HARD SYSTEMS

TECHNOLOGY

SCIENCE

Figure V: The Hawkesbury Spiral of Problem-tackling Methodologies
1.9 THE HAWKESBURY SPIRAL & MANAGEMENT THEORY

Over several years, attempts have been made to reconcile the problem-tackling concepts of the Hawkesbury Spiral with management theory. It was felt that as the concepts of the former are universally applicable to problem solving of any sort, then it must be possible to find in the latter a restatement of these concepts, albeit from a management perspective, and in management terminology.

Such is the case; at least as it involves the soft and hard systems levels of the spiral. This was to be expected; management theory concerns itself with situations that involve people and processes in human activity systems.

Recent management texts, such as Bateman & Zeithaml(47), Mukhi, Hampton & Barnwell(48), and Bartol & Martin(49) describe the evolution of management thought in the various theories of management that have evolved over the period spanning the industrial revolution to the present time. They show that management theories initially ignored and, then only slowly, came to include considerations of the human factor.

Bartol & Martin (49) provide an especially useful categorisation: it shows the development of the major theory streams over time, and discusses the contributions of key individuals to the various viewpoints; thus:-

Preclassical Contributors - Robert Owen (1771-1858), Charles Babbage (1792-1871), and Henry Towne (1844-1924). Beginnings of the concept of systematic management.

Classical Viewpoint-
* Scientific management - Frederick W. Taylor (1856-1915), Frank Gilbreth (1868-1924), Lillian Gilbreth (1878-1972), and Henry L. Gantt (1861-1919).
* Bureaucratic management - Max Weber (1864-1920).

Behavioural Viewpoint-
* Early Behaviourists - Hugo Munsterberg (1863-1916), Mary P. Follett (1868-1933).
* Hawthorne Studies - at Western Electric plant in late 1920s-early 1930s.
* Human Relations Movement - Abraham Maslow (1908-'70), Douglas MacGregor (1906-'64).
* Behavioural Science Approach - developed from Maslow's & MacGregor's work, and, for many years, with their continuing input.

Quantitative Management Viewpoint-
* Arose during World War II; focuses on the use of mathematics, statistics, and information aids to support managerial decision making & organizational effectiveness.
* Three main branches: management science, operations management, and management information systems.

All these management theories are collectively referred to as the Classical Approaches.
Figure 1.15: The Hawkesbury Spiral (Revised)
A great conceptual leap separates the next two management theories from all that precedes. The most recent theories are:

* **General Systems theory** - beginning in the 40s with von Bertalanffy, later Boulding and Miller. And development continuing to this day.

* **Contingency perspective** - beginning in the 50s with Woodward, later Luthans, Lorsch, Tosi & Slocum. And development continuing to this day.

Bateman & Zeithaml (50) expressed the view that: "Two criticisms directed consistently at the classical approaches [to management] were that they :(1) ignored the relationship between the organization and its external environment and (2) usually stressed one aspect of the organization or its employees at the expense of other considerations. To overcome these deficiencies, management scholars during the 1950s began to conceptualize organizations based on a general scientific approach called systems theory." They concluded that systems theory was a diagnostic tool for managers to study a situation, but that it did not provide (of itself) specific guidance on the functions and duties of a manager. However, "The final approach to management [the Contingency Perspective]... translates the systems perspective into a practical means of describing and prescribing management activities." They describe this translation thus: "By expanding on the fundamental concepts of systems theory, the contingency perspective contends [that] the management strategies, structures, and processes that cause high performance depend on the characteristics, or important contingencies, of the situation in which they are applied."

Mukhi (51) provides us with a conceptual precis of this:

"A key contribution of the contingency perspective may be best summed up in the observation that there is no one best way to manage. There are no plans, organization structures, leadership styles or controls that will fit all situations. Instead, managers must find different ways [from amongst the classical approaches] that fit different situations."

Thus, modern management theory argues that none of the classical approaches to management is universally applicable. What is required of managers is to match an appropriate classical approach (or mix of approaches) with the requirements of a particular situation; i.e., to use the contingency approach. **But, in order to use the contingency approach, it is first necessary to establish the requirements of the particular situation and, for that, systems thinking/analysis is essential.**

A model of the process is:

**Figure 1.16**

---

![Diagram](attachment:image.png)
This model may be elaborated one further step, by adding the tools of Reductionist Technology and Reductionist Science; thus:

Figure 1.17

THE COMPLETE CONTINGENCY APPROACH TO MANAGEMENT

The systems approach parallels between modern management theory (albeit in the absence of Kolb cycle process) and the Hawkesbury Spiral are clear. One may not optimize situation improvement unless the appropriate tools are applied to the 'problem' situation. Systems analysis will identify the dimensions of a particular 'problem' situation. And it is the analyst's understanding of the range and detail of the classical management approaches that will allow the identification of the right tool(s) to be used.

From the preceding it becomes clear that the systems analyst needs to be educated to the classical approaches to management, so as to be in a position to select alternative courses of action, and so, efficiently execute situation improvement - it is obvious and must be insisted upon.
2 THE RESEARCH FINDINGS

2.1 OVERVIEW

This research project had origins in a task arising from a Faculty of Agriculture staff meeting in October 1987. Though no specific problem had been identified, there was sufficient dis-ease amongst a majority of staff, over a number of key issues, to call for a review of the programme for marketing faculty outputs (graduates).

After several months of preliminary study, it was thought that the situation was of a complexity sufficient to qualify for the topic, (then being sought) for this research study.

The project was presented to and approved by a faculty post-graduate supervisory panel on 4/7/1988. The study was undertaken on a part-time basis.

The report on the pages following gives the appearance of development in a stepped sequence of insights; the one preceding giving birth to the succeeding. This is only apparent and not real. Working part-time and mostly far from faculty contact [at RMIT in Melbourne], development more closely approached controlled chaos.

Conceptual models evolved as wider reading led to new and better informed questions to pose and explore. For example, discussion of the then much advanced project with a Senior Lecturer in sociology brought to light the existence of a large body of research into how secondary students make career choices. This, a benevolent crisis of awareness necessitated a return to the diverging stage of the analysis, and subsequent re-development of conceptual models. There has been much iteration.

As for the blind alleys explored, and the (so far identified) conceptual errors; they will not be discussed. Underpinning this decision is Huxley's recommendation: "On no account brood over your wrongdoing. Rolling in the muck is not the best way of getting clean."(52) However, a clear distinction is made by the writer between constructive reflection and 'rolling in the muck'.

2.2 THE PROBLEM SITUATION : UNSTRUCTURED

2.2.1 RATIONALE FOR THE INQUIRY

The starting point for the inquiry was a general sense of dis-ease felt by a majority of faculty staff about: (1) a perceived reduction in acceptance by traditional employers of graduates issuing from the faculty's new learning paradigm; (2) a degree of confusion (stress) exhibited by students in the new programme, and (3) continuing poor support from external academic peers over the new learning paradigm. This dis-ease became more noticeable during 1987, and led to the writer being asked at an October '87 Faculty Meeting to undertake a review of the process used 'to market the faculty outputs'.

The new learning paradigm had progressively been introduced from 1978. It was not until research into the total faculty organizational structure & functions (including
technical support) was carried out over 1983-85 that the final faculty reorganization was implemented; it was used with Council's consent in 1985 as an experiment. Council gave approval for the permanent change as at beginning of 1986.\(53\)

The new programme "aimed at producing graduates with a multi-disciplinary rural development perspective instead of the narrow agricultural production one that had prevailed until that time." "Now the educational focus is based on the development, by the students, of a 'profile of competence'..." "There are three major areas of competence: autonomy or self-direction as a learner, effectiveness as a communicator, and the ability to improve complex agricultural situations and solve agricultural problems. The programs are designed to enable students to develop a systems (= systemic or holistic) orientation and an awareness of the complex of social, human and natural factors involved in agricultural and the more general situations."

"The basic educational strategy used in the curricula is that of 'issue -based learning projects' whereby students learn about solving agricultural problems by getting involved in real agricultural problems." In short, students are immersed in an experiential environment, are taught to use the 'systems' methodologies to analyse, make sense of (learn), and define/solve problem issues in agricultural and related issues, and are taught to communicate at all levels.\(54\)

"Systems Agriculturalists" issuing from the course are individuals having the three competencies above enunciated: problem solvers (in agriculture or related areas) using a systems framework for analysis, communicators, and (lifetime) autonomous learners. This study uses the term 'Systems Agriculturalist' in that sense.

All staff members, to a greater or lesser extent, had experienced the sense of dis-ease. that flowed from signals coming from both the internal & external environments of the faculty. Richard Bawden in his June (1988) Council Meeting Report touched on student tensions, on poor response from state politicians and from 'academic confreres in other Faculties of Agriculture around the country...'\(55\) In the same report, Bawden was able to draw attention to other local and international reports that were laudatory about the change in learning paradigm.

After preliminary study, it was concluded that a 'problem situation' existed and required analysis. Even at this early stage of limited understanding of the complexity of the situation, it was taken as a 'given' that a 'solution' was not going to be found by only developing a plan 'to market the faculty outputs'. And so, the first step of initial modelling of a 'rich picture' was begun.

The writer, through this study, was to be led to appreciate the complexities of a question asked by Campbell in 1959:

'If a mechanic with an artificial arm is working on an engine, is the mechanical arm part of the organism struggling with the environment, or part of the environment the organism is struggling with?'\(56\)

If one reads 'faculty' for mechanic, reads 'learning paradigm' for mechanical arm, and reads 'publics'[students, academic peers, politicians, employers] for engine, the cited conundrum becomes a fair representation of the faculty's situation.
In considering the environment in which agricultural education in general, and the faculty paradigm in particular is immersed, it is perceived that there are formidable international forces at work. One must allow that such forces could precipitate a sea-change in the purpose and structure of rural industry in Australia. Forces like the Economic Community after 1992 and its Common Agricultural Policy (CAP), and the looming North American Free Trade Association (NAFTA) along with the already existing United States Export Enhancement Programme (EEP), alone hold within themselves the seeds of radical rearrangement of world trade in agricultural products. Daniel Moynihan (57) observed that "Of necessity, we tend to interpret present events in terms of past experience, there being...as yet but little future experience to guide us." In that, there lies an alert; the changes that lie ahead for Australian agriculture may be greater than we can at present imagine, or even dare to imagine. And this will be the real-world environment in which faculty outputs (graduates) are now, and will be, seeking careers. Given the complex-dynamic nature of that environment, it is felt that, because of their holistic formation, faculty outputs are particularly well formed to succeed therein. One of our key tasks in developing the marketing plan, is to ensure that appropriate employers think the same.

### 2.2.2 RICH PICTURE

Employing the first step in the methodology described in Section 1, the diverging phase of the Kolb Cycle was entered into and a rich picture developed. Figure 2.1 (over page) presents the rich picture of the 'problem' situation. It has the focus of a researcher concerned with examining the internal and external environmental factors affecting the supply/demand (marketing) situation of inputs & outputs of the educational system that is the Faculty of Agriculture at UWS-Hawkesbury.

Using management nomenclature, the system has three sub-systems (SS): Strategic, Tactical, and Operational(58) :-

**SS#1 - The Strategic SS** (comprising the Deans and the Senior Management Group) is concerned with major interactions between the organization and critical components of its environment; e.g. with UWS-H and UWS management, with graduate employer groups, with government agencies, with professional associations. Based on these exchanges, plus inputs from other SSs, the major goals and plans needed to achieve the system's purpose are established. Control mechanisms are devised and implemented.

**SS#2 - The Tactical SS** translates long-term strategic goals into short-term operational objectives and provides support services that facilitate and coordinate the Operational SS, plus providing inputs and handling outputs. For example, roles such as Course and Phase Coordinators, Senior Technical Officer, Farms Manager, Outreach Manager, and Faculty Administrative Officer, are located in this SS. One of the roles of this SS is to reach out to the faculty's publics in a marketing sense; directly, and through UWS-H's Public Relations Department.

**SS#3 - The Operational SS** performs the conversion of inputs (students) into outputs (graduates). Lecturers, technical, farm and administrative staff are located in this SS.
FIGURE 2.1: Rich Picture of Graduate Supply-Demand Situation

Problem Solving Focus:
Graduate Supply/Demand Situation

Commodity Councils
Rural Industry Associations
ACTU
Professional Assns
ATA AIS AFMS Other
OBU
Animal Welfare
Environmental Groups

Interaction and Rate of Change

Purpose

Economic

TAFE Tertiary

Specific Factors

NFF
Rural Industries

US/EC-GATT
A$ Terms of Trade
Rural Debt
Export Markets
Employment

TERMS AND CONDITIONS

NFF
Rural Industries

US/EC-GATT
A$ Terms of Trade
Rural Debt
Export Markets
Employment
A number of issues identified in the rich picture merit comment:-

A. Initially, Outreach activities were not considered as integral as they later became to the marketing planning described in this thesis; they were at first considered as, at best, complementary to the plan and, at worst, a competitor for funds needed to promote the faculty outputs.

When first principles of management were applied to the situation, the crucial link between the success (or not) of Outreach recruitment activities and the quality of faculty outputs was revealed: the quality of the input raw materials limits the quality of the outputs produced. The process is depicted thus:

**Figure 2.2** A Simplified Production System.

(* After Mukhi (59)

Augustine's Law Number One (60) contains the concept that must drive the faculty's recruitment programme:

"The best way to make a silk purse from a sow's ear is to begin with a silk sow."

B. The situation of TER scores for admission to courses in the faculty will be more fully discussed in Section 2 - The Problem Situation: Structured; it is found to be intimately associated, at least for school-leavers, with mechanisms influencing career choice. All that is necessary to recognize here is that faculty TER scores in 1990 and 1991 for both the Bachelor & the Associate Diploma course were the lowest for agricultural courses in NSW. Post-1991 TER scores are ignored, due to the increase from 1992 in the student demand side of the supply-demand situation, and the consequent effect on everywhere raising these scores.

For later discussion also is the issue that most school recruiting visits are made by staff of the Community Relations Group (CRG) of UWS-H.
C. The focus of this investigation is on the undergraduate courses offered by the faculty. No attention has been given to the post-graduate component of the faculty's purpose. However, it is a 'given' that a promotional programme that succeeds in establishing the essential correctness of the thrust of the faculty's educational paradigm (reputation) at undergraduate level will 'spill-over' and be inextricably associated in the minds of our several publics with post-graduate course offerings.

D. The comment from Bawden (above)(55) re the poor response from academic confreres to the teaching paradigm was, for the writer, an extension to academia of attitudes earlier observed amongst graduate staff of NSW Agriculture; when the writer worked in the Division of Marketing & Economic Services in that organization. However, the force of Bawden's observation was only fully appreciated when, during the course of this investigation, contact was made with a lecturer in farm management in VCAH. He asserted that Hawkesbury's 'systems agriculture' had set-back the cause of agricultural education in Australia by a 'hundred years'. It was clear from the start that the VCAH lecturer had formed opinions about what the faculty is doing in the total absence of any real data or understanding. The fact that he thought that the management process of systems inquiry was the same thing as experiential learning was most revealing; it gave an indication of the depth of ignorance about the faculty's learning paradigm that exists even in tertiary institutions teaching agriculture.

E. A common issue discussed amongst faculty staff was a perception that traditional employers were less enthusiastic about the employability of 'new paradigm graduates' than that of the 'old'. The 'wants & needs' of appropriate employers in rural industries are now reasonably well defined; they will be discussed in Section 2.3. If asked to put a label on the desired academic profile of a non-research new-entry graduate, it would need to be: 'a cap of commerce on an appropriate technology base'.(62)(63) But, such label ignores certain other competencies eagerly sought by employers; these are regarded by them as part of the personal profile of a candidate: for example, effective communic-ation, high level of interpersonal skills, and capacity to problem solve.

Bateman & Zeithaml (64) observed that this separation of acquired and personal (trait) skills is embodied in the Trait Approach to research into leadership characteristics; it dominated management thinking from 1940 to 1948, went into decline when first, the Behavioural Approach, and then, the Situational Approach took their turn; it re-emerged with a more balanced view of the significance of traits in the mid-1970s. In short, unless told, employers do not expect to find (what management theory regards as) personal attributes in an academic transcript.

The learning paradigm specifically focuses on certain of these traits and requires students to develop them in order to graduate; they are core 'subjects'. We have not acted forcefully enough to get this message to employers. And the format of our academic transcript has not assisted in this. Though somewhat modified recently, the academic transcript still essentially records that the student has attained a satisfactory level in autonomous learning, systems agriculture (problem solving), and communication. This will be discussed in Section 2.3.4.

F. We are not only concerned with the 'fitness' of our graduates for employment, but also with the nature and even availability of appropriate employment for them. It thus
becomes necessary to examine the present and possible future economic environment in which rural industry is immersed. This aspect of the study was undertaken with, given the state of rural industry, some trepidation. The outcome points in a far more hopeful direction for our graduates than was expected at the outset.

2.3 THE PROBLEM SITUATION EXPRESSED

2.3.1 KEY THEMES FOR DEVELOPMENT

Describing the nature of inquiry in Athens in the 5th century B.C., Kitto(65) observed that "The Greek was not happy unless he could relate the particular instance to general law; it is in generality that the truth can be seen and tested." It is in this sense that the following analysis of the 'problem' situation is attempted.

The key themes for development drawn out of the rich picture process are described in Figure 2.3 (over page). They are:-

* Employer desired competencies/Graduate profile/A comparison.
* Attitudes of concerned players/publics.
* Nature/Extent of competition.
* Economic & Socio-cultural impacts on employment.
* Existing Marketing of faculty.
* How to attract better/more students?

2.3.2 Employer Desired Competencies/Graduate Profile/A Comparison.

(a) Employer Desired Competencies.

Because of significant research undertaken in recent years, both here in Australia and in the United States, a clearer picture of employer needs & wants in new entry graduate competencies has emerged. If we are to focus on agriculture, the key research has been reported by Lees et al.(66), Fairnie et al.(67), and Litzenberg et al .(68) Fairnie, in Australia, used Litzenberg's U.S. research protocol (the AGRI-MASS survey) and found remarkable similarities between Australian & U.S. findings.

The Lees and Fairnie reports (concerning the Australian scene) were examined and critiqued by a professional market researcher.(69) The writer, Bill Callaghan, operates an enduring, successful market research consultancy in Melbourne; he is also Senior Lecturer-Market Research in the Graduate School of Management at RMIT. It is Callaghan's view that both the cited reports have experimental design flaws which, especially for the Lees report, reduces confidence in the values assigned to various criteria elements in the six job categories studied.

The essential criticism on design goes to the manner in which different survey methods have been used and the results, apparently, consolidated. Both surveys used a mix of mail, telephone, and personal interviews. The researchers appear to have ignored the
Figure 2.3: Key Themes Arising From The Rich-Picture Development

KEY THEMES FOR DEVELOPMENT

STUDENTS STAFF EMPLOYERS

OUTSIDE ATTITUDES ACADEMICS

NATURE/EXTENT OF COMPETITION

EXISTING MARKETING OF FACULTY

ECONOMIC & SOCIO-CULTURAL IMPACTS ON EMPLOYMENT

FARM OFF-FARM

EMPLOYER DESIRED COMPETENCIES

PUBLIC PRIVATE

HOW TO ATTRACT BETTER/MORE STUDENTS?

HOW DO STUDENTS CHOOSE?

CAT B FOREIGN

SCHOOL LEAVERS

"CURRICULUM" DEVELOPMENT CONSEQUENCES
perturbing nature of 'interviewer effects'. Tull & Hawkins (70) observed that "The ability of interviewers to alter questions, their appearance, their manner of speaking, the intentional and unintentional cues provided, and the way they probe can be a disadvantage....The danger of interviewer effects is greatest in personal interviews. Tele-phone interviews are also subject to interviewer effects. Mail and computer surveys have minimal interviewer effects."

In addition, there is no reference to the standard procedure of validating/verifying a sample (usually 10-15% of the respondents) so as to ensure that "the interview took place and was conducted properly and completely."

On the basis of using a mix of interview methods and not statistically 'loading' the three categories of response according to the expected degree of interviewer effect, the values assigned to specific responses must be questioned. If the interviewer effects were constant across all respondents, then the comparison of trends for specific responses could be regarded as valid, if not the actual values assigned to them. This assumption has been made.

A further observation goes to the different parameters chosen by the two research groups to represent the same 'competence'. Thus, only broad qualitative comparisons (after some interpretation) can be made between Lees et al and Fairnie et al's nominally the same designated competencies.

Lees design for the inquiry viewed agriculture as "an industry consisting of a farm supplies sector, a farm production sector, a farm commodity marketing sector, an agricultural products processing sector and a farm/agricultural services sector."(71) Lees included under the 'farm/agricultural services sector' the 'various State and Federal government agencies'. Fairnie's sample replicates these target publics. Thus, both studies focused on the same mix of both public and private employers. And, to this extent, comparisons between the findings are possible.

Fairnie's results will be used as the template against which Lees' results will be compared.

For new entry graduates, Fairnie(*) ranked six competencies (skills): Rank 1 being the most important to employers, and Rank 6, the least.

The rankings are:-

- Competence 1: Communication
- Competence 2: Interpersonal
- Competence 3: Technical
- Competence 4: Business
- Competence 5: Computer
- Competence 6: Work Experience

(*) Details of the personal and professional attributes that constitute each of the six competencies are contained in Fairnie's paper in Appendix One. Lees' tables (Figs. 10.1 and 10.2 (a)) containing his selected attributes that go to the specified competencies are also included there for comparison.
Lees' results for Research (Government) & Research/Development (Private) positions have been ignored: the faculty outputs have not been formed for such posts.

A comparison of Lees' & Fairnie's findings can now be made.

**Competence One: Communication**

Lees' data [see his Fig. 10.2(a) Importance...to Industry in Appendix One] shows that employers rated communication at Important to Extremely Important. Generally, the government sector was more demanding than the private sector; which is an unexpected result. Overall, and allowing for parameter differences between the studies, Lees also places this competence at Fairnie's Rank #1.

**Competence Two: Interpersonal**

Lees' data [see his Fig. 10.1 Criteria...selecting new staff in Appendix One] shows that employers rated selected attributes (comparable with some of Fairnie's parameters) again at Important to extremely important. Parameters judged comparable were: motivation, self-confidence, work with non-agricultural professionals, work with non-qualified people, work in team, [work] outside hours, involvement in organization. Making allowances for differences in parameters, Lees rankings value this competence at Rank #2; slightly behind 'Communication'.

**Competence Three: Technical**

Lees' data [see his Fig. 10.2(a) in Appendix One] shows good correlation with Fairnie; there is a drop in perception of importance (from slightly below Important to somewhat above Important - no parameter is regarded as Very Important). In descending order of importance is technical ability with Plants, Livestock & Soils +/-equal, and engineering. Fairnie's results were the same. Lees ranking, #3.

**Competence Four: Business**

It is extremely difficult to make comparisons between Lees' and Fairnie's' attributes constituting this competence; the former uses only six (one of which seems misplaced: 'Self-Assessment'), whilst the latter uses twenty. Lees values for the five 'appropriate' parameters range from just under Important to just over/clearly over Important. This would give this competence a rating of about the same as Technical (Rank #3). This is probably an artefact; ranking would probably be lower. (Rank #4 ?)

**Competence Five: Computer**

Lees, writing in 1982 about a research project that began in (say) 1980, is, not surprisingly, silent on this subject. At that time the surge in PCs for business/farm use had barely begun.
Competence Six: Work Experience

Lees' findings [see his Fig. 10.1 in Appendix One] are that employers rate any or specific [related to the job] work experience as being more or less important to all employers. It is difficult to understand the finding that 'any work experience' ranks almost as high as 'specific work experience'. In any case, the results indicate that this competence is valued less than Business and, in the absence of 'Computer' skills, would become Rank #5.

Summary: It can therefore be concluded that, though Lees' work precedes Fairnie's by around eight years, there remains great similarities in the competency wants & needs of employers of new-entry graduates in rural industry in Australia.

The high ranking of business skills combined with a technology formation strongly argues that the graduate who will be preferred for the sorts of positions we would regard as appropriate for our graduates will have a cap of commerce on an appropriate technology base', rather than a graduate who has followed a pure agribusiness stream of study.

We should not be surprised that even employers like the state departments of agriculture are now opting for such graduates; there is an "increasing commercialisation of government services, with the introduction of user-pay requiring a greater commercial orientation of public sector employees." Today, extension officers deal with issues on farms that also involve commercial viability.

This conclusion is confirmed by reports of surveys conducted into agribusiness employers by VCAH (1985) and VCAH/Chisholm (1987). Referring to the latter(73), this survey had as its objective; to determine "...the desired proportionate mixture between business and agriculture disciplines..." The findings were that "Respondents...recommended a variety of mixtures between agricultural and business disciplines ranging from one extreme of 80:20% to the other extreme of 20:80%. However, most respondents recommended roughly equal emphasis on both disciplines." (emphasis added)

The Survey of Agricultural Education Needs, conducted by Agrimark Consultants Pty Ltd, dated October 1990 (74) confirmed the broad scope of the preceding. Referring to graduates required for the commercial sector, the report stated:

"A large number of graduates are required to fulfil roles which are not highly technical [as opposed to R&D roles] but which require commercial acumen, people skills and general intelligence and problem solving ability. These positions usually require interaction with the company's clients [need a high level of communication skills]." "In employment terms, this is the largest segment." "Employers of "commercial" graduates invariably refer to the lack of exposure to, and understanding of, the commercial sector as a major deficiency in graduates."
From all the preceding, it is a justifiable conclusion that the sort of appropriate
employers towards which a large proportion (the majority?) of faculty outputs gravitate,
are searching for a graduate with special people, communication, and problem solving
skills, but who must fundamentally have 'a cap of commerce on an appropriate
technology base'.

(b) Graduate Profile
In the (undated) Review Committee Report of the Hawkesbury Bachelor of Applied
Science (Systems Agriculture) (75), covering their meeting of 16/12/1985, the following
comments were made concerning the graduate profile:

"There were, however, differences among members of the committee as to the
immediate value of graduates [to industry]." "On the one hand, the view was expressed
that graduates from the course are outstanding in terms of communication skills, self-
confidence, problem solving ability and capacity to seek, find and use information. This
is attributed to the whole philosophical approach of the course which is complemented
by an appropriate structure and content."

"On the other hand, the view was expressed that graduates are lacking in technical
agricultural skills and in management skills." (emphasis added)

"While these doubts were allayed to some extent through discussions with staff and
students, the committee seeks an assurance in respect of this matter. The ability to give
such an assurance is, in the view of the committee, an important element in increasing
public confidence in this new and completely different kind of agriculture degree."
The committee recommended accreditation with the proviso that: "Given the stated
intention...to provide students with the opportunity to move more deeply into the areas
of agribusiness, economics and marketing, it is recommended that approval to proceed
in this direction be made conditional on assurances being given as to the availability of
resources, including appropriately qualified staff and professionally designed advanced
learning packages."

If the definition of the employer desired profile in Section 2.2.2 (E) (and re-stated above
in Section 2.3.2 (a)) is accepted; i.e., 'a cap of commerce on an appropriate technology
base', then the requirements of the Committee at that time could not have been
more appropriate. Of course, one will be besieged by critics for uttering a concept like
this last: by reacting to employer wants and needs, one traduces the age-old concept of
university! But this is not so. We are not only about fitting students for employment in
the 'here and now', but providing them with a mental construct of how, in the dynamic-
complex environment that is rural industry, they may prepare for and respond (now and
in the future) to the expected massive and protracted changes in the rural environment.

The addition, in 1992, of the double degree; B.Commerce/B.App.Sci. (Systems
Agriculture), albeit with limited student numbers, is obviously a very positive step - so
long as the commerce component is fully integrated into the agricultural environment by
project-based application of theory with a systems perspective. It is the writer's concern
that, if the commerce component of this double degree is taught as conventional theory,
then the graduates will be no more (or less) conversant with the reality of commerce in
agriculture than a graduate in pure business. Which is to say, hardly at all.
Lees, writing in 1982,(76) acknowledged the importance of being able to handle change in agriculture: "Those who have survived in agriculture during the last 15 years have done so largely due to their ability to adjust to changing circumstances and to find solutions to problems, many of which were new to the current generation of agriculturalists and farmers. An important factor in facilitating such adjustment is the provision of relevant information for those confronted with the realities of change on a day-to-day basis. No less important is the need to provide skills training for those involved so that they are better equipped to apply new information and so make the adjustments demanded of them."

Graham Blight (President of the NFF) recognized the pace of change, and envisaged certain industry responses. He forecast that "Farmers will become better educated. They will be on average younger and more astute businessmen."(77) (emphasis added)

Since 1985, the faculty has provided additional staff resources in the business area (from within and via the School of Commerce),and strengthened its demands on students in their "Acquisition and use of relevant concepts from the physical, biological, social and behavioural sciences."(78) Thus, additional technology and management (business) strengths have been added to a graduate profile already acknowledged by the Committee as being remarkably strong in other highly desirable competency areas. The 1989 Review Committee report(79) appears to be in agreement with this last; it is silent on its 1985 comment about students "lacking in technical agricultural skills and in management skills." It does however, make other recommendations about 'promotion' of the course and the final 'academic transcript'; these will be considered elsewhere.

(c) A Comparison

The aim of the faculty is "to produce a graduate who is competent to act in improving situations in agriculture. Such competence will manifest itself in three main areas denoted Systems Agriculture, Autonomous Learning and Effective Communication."(80) It is most interesting to observe that this 'mission' (purpose) is inwardly focused; it does not refer (except, perhaps, by implication) to the faculty's publics. Certainly the 'mission' does not include a recognition of the task of informing these publics. (See Sections 1.2 and 1.3(b))

Irrespective of the study stream chosen [Farming Systems, Marketing & Rural Commerce, Rural Development & Extension and Agricultural Education], the emerging graduate has a profile that responds to (and in some areas even goes beyond) the 'ideal' employer-desired profile that is described above in Section 2.3.2 (a). It is a 'given' in this judgement that the areas of concern noted by the Review Committee in 1985 have been fully addressed by the faculty through the measures described above. It is also a 'given' that 'a cap of commerce on an appropriate technology base' is a continuum, where, according to the student's career path direction, the proportion of commerce to technology in the competency profile will be different. However, from the research, we may justly observe that the 'commerce' component should never be zero.
The 1989 Review Document reports the results of surveys sent by the faculty to graduates and staff between 1985 and 1988; it provides graduate and staff perceptions of selected student abilities central to the objectives of the course. One attitude especially is of great interest: from 1984 to 1988 graduates felt that their technical knowledge had increased quite significantly. On a scoring base of 1 = hardly at all, and 5 = very much, scores had moved from 2.8 in 1984 to 3.8 in 1988. It would be interesting to see the results for later years, but that data is not yet available. But the trend is positive and indicates that the above noted efforts made by the faculty to respond to the Review Committee's criticism are working. Unfortunately, the surveys are silent with regard to the questioning of graduates on their perception of 'business' skills acquired. It is recommended that this be asked in future surveys.

If it could be evidenced that both technical and business skills of graduates had a score of (around) 4, then this would provide the evidence that the graduate profile was as close to ideal as one could wish; and that a promotional campaign could be mounted safe in the knowledge that the inherent 'promise' in the message to employers could be delivered.

2.3.3 Attitudes of Concerned Players/Publics
(a) Students
Bawden mentioned "student tensions" in his June [1988] Report to Council. Earlier, Cardwell in 1987 had reported on the origins of some of these tensions. Key observations were:-
"In spite of the personal interviews as a part of the admission process there were a number of students who did not know what it meant to be an autonomous, experiential learner when they started."
"Students believe they lack depth in basic sciences and in agricultural sciences. They are becoming increasingly sensitive to the view of being educated but uninformed about the "technology" of agriculture.
"They (students) have an undefined nitch (sic) in the future job market, a market that is rapidly changing in Australia."
Applegate in 1988 observed that the lack of a broad theory base was "exactingly a price in the self-confidence of students and is the focus of external criticism."(84)

During First Semester 1989,(student members of the ART) Brent McDonald and Stephen Harris undertook a wide series of in-depth interviews of Phase III students and recent graduates. The interviews were unstructured; in the sense that once the initial question had been put, no further direction was given to the respondent. The question was:- How will you describe your time at Hawkesbury?
The responses were very wide ranging, but later comparison with the attitudes contained in the June 1989 Review Documents showed no gross deviations. However, apart from the regularly reported 'confusion', stress, and the concentration on 'process' to the detriment of science content [see J. Zarb on this last], the most concerning issue emerging was that, in most cases, the respondents would not recommend the course to potential new students. It is doubtful that such response could have been elicited from any study that was not conducted by trusted student colleagues.
McDonald put forward no ideas as to the reason for this finding, only an assertion: he believed that "Graduates and undergraduates appear to be too critical of possible students [their capacity to fit the course]. Perhaps the graduates have forgotten that they too, were probably very similar to the person they were assessing, yet they are in the faculty and developing and learning." (86) A different view is that the respondents had synthesized their confusion and stress (in the learning process), plus uncertainties about a clear career role-model, and growing awareness of 'holes' in their science base (and traditional employer attitudes to this last), into a 'don't go through what I've gone through' attitude. Implicit in this conclusion is Ferguson's concept that "A learning shift is preceded by stress whose intensity ranges across a continuum: uneasiness, excitement, creative tension, confusion, anxiety, pain, fear." (87) If we add the normal career anxiety, which includes the profiling of self against traditional science or agribusiness graduates, then the reason for the view becomes clearer.

What the respondents were not then capable of understanding is how much, in other competency areas desired by employers, they already stand head and shoulders above graduates from other courses. This matter will be further addressed in Section 3 - Feasible & Desirable Changes.

Bawden & Packham (88) have given further clarification as to why students (and staff) felt under stress. On the one hand, discussing students, Salner's 1986 work (89) is reviewed and the observation made that "...one cannot "teach" a systemic epistemology to a mind not yet ready to accept it...", and, on the other hand, discussing academic staff, it was observed that, whilst the students themselves had come to accept 'learning autonomy', the lecturing staff "were there, stimulating the problems, structuring the projects, sneaking in key concepts from our disciplines, and indeed still behaving like good old didactic pedants while pretending to be experiential facilitators." The stress (of change) was not just confined to the student body! Yet, out of this stress, co-learning occurred, and, after debates, it was "unanimously agreed as a faculty to adopt a systemic model of experiential learning as the process of inquiry which would pervade our learning community".

(b) Staff

On 1/6/1989, lecturers attending the weekly faculty meeting were asked by Brent McDonald and Stephen Harris to participate in a process designed to define the "Essence of a Hawkesbury Agriculturalist".

Within the faculty at that time, three 'discipline' groups had emerged, each representing a focal point for discussion and planning (on mainly course activities/development): they were: science and technology, economics and agribusiness, and rural development-extension-education.

The meeting was asked to break into these groups, and to address the question: What are the qualities that distinguish a Hawkesbury graduate from other agricultural graduates?

The separate groups debated the issue and compiled a list of qualities. Scrutiny of the results showed that there was a remarkable uniformity of response across the three groups. It had been thought that, according to the discipline(s), there may have been different perceptions of students' qualities; this was not so.
As was expected, all groups referred to 'core' skills associated with the course of study; i.e., those related to people-handling, communication, handling of change, systemic approach to problems, and the like.
Other issues did come through and all could be related to the general graduate profile; rather than to specific industry sectors. Thus, Hawkesbury graduates:

* Had a wider view of agriculture than just production.
* Had maturity through real-world experience.
* Could cope with modern problems.
* Were effective in networking and accessing human resources.
* Were open-minded and objectively critical of information and its use/application.
* Had a great ability to integrate information across a range of disciplines.

These attributes, along with the 'expected' competencies, go far to satisfying Carrel's observation that "...syntheses, as well as discoveries demand exceptional mental power and physical endurance. Broad and strong minds are rarer than precise and narrow ones....very few individuals are capable of acquiring and using knowledge of several different sciences....If the superiority of this kind of intellect were recognized, and its development encouraged, specialists would cease to be dangerous. For the significance of the whole could then be correctly estimated."(90)

McDonald concluded: "The results show that a Hawkesbury graduate is well suited to the Agricultural industry and is a very employable commodity. It is now time to inform both the faculty and non-faculty [employer] sectors that this situation exists."(91)

Despite the faculty's 'promotion' of its 'new paradigm' outputs since 1985, a student (McDonald), only months away from graduation, had, through this research project, detected that employers did not have the same perception of graduates as did the faculty. More, arising from in-depth personal interviews of McDonald, he had perceived that not only students, but also some elements of the faculty were not as confident of outputs as the faculty 'line' suggested: McDonald's recommendation "...to inform...the faculty..." is noted. In addition, given the attitudes of students, earlier suspected and confirmed by the inquiry, it must be seen as essential that the faculty mount a continuing campaign so that students should also be informed of their perceived value to the industry.

(c) Employers

Faculty staff have long discussed the perception that traditional employers were less enthusiastic about employing our 'new' as opposed to our 'old' graduates. Leaving aside for the moment the case of traditional agricultural scientists as employers, let us consider the case of on-farm and off-farm employers of graduates.

Over the years, certain expectations are developed by employers; they feel comfortable about the skills that a Hawkesbury graduate can offer their organization. These expectations also go to an understanding of what other on-the-job training requirements will be needed in their specific organization for these graduates.
The Faculty presented employers with a new graduate that did not fit with either their experience or procedures. And, it seems clear, that the Faculty did not mount a formal educational campaign to inform employers of the changes. In fact, employers were subjected to 'rapid change'. No professional marketer, of even household goods, would put out a new product under the old label without, mounting a campaign explaining the changes to, benefits of, and how to use the "NEW, IMPROVED PRODUCT". It may be concluded that in this omission lies the explanation of the seriously extended (8-10 years) 'adoption process' by employers.

The case of traditional agricultural scientists as employers is well covered by Cardwell.(92) Using NSW Agriculture staff for his interview sample, he found that the attitude to the faculty outputs was: an "apparent lack of general agricultural competency"; different from former graduates; but a recognition of other (new) competencies.

Zarb (93) observed that this community "would be at odds with a phenomenological approach to agricultural education and appalled at any variation in science content or organisation." And, in the writer's experience,(within NSW Agriculture, and from discussions with academics from other agricultural institutions) they are. In 1952, I Bernard Cohen (then Professor of the History of Science at Harvard)(94) observed that "There exists in science a general resistance to change in fundamental concepts and theories and this constitutes a kind of scientific orthodoxy. The degree of violence with which a new idea is rejected by scientific orthodoxy may prove to be an index of its importance." Robert M. Pirsig (95) refers to this attitude as the "cultural immune system". Change in this sort of attitude is expected to have a long-term horizon.

However, the faculty could make a start in what will be a long process, by taking an active membership role in the Agribusiness Association of Australia and New Zealand. This association brings together personnel from grower organizations, chemical and machinery companies, and the food industry, from agribusiness educators, from agribusiness facilitators such as bankers and shippers, from bureaucrats within state and federal departments. Its annual conference is the venue for discussion and the presentation of papers that concern subjects at the junction of interest of these concerned groups. In addition, the conference is the venue for the judging and award presentations for the best undergraduate and graduate marketing plans for a new agribusiness product. It is strongly recommended to the faculty to take-on the effort to become an active member of this association, and have the opportunity to present its views in a forum that includes opinion leaders in all its key target publics.

Many organizations attract erroneous perceptions about themselves because of their failure to undertake programmes to educate their concerned publics, or they do so, but incorrectly. Bateman and Zeithaml(96) take the view that a successful Public Affairs Department (which includes the Public Relations Group, but has wider public interface responsibilities than just PR) can mount programmes that enhance an organization's credibility, and can facilitate timely and appropriate response to issues arising out of any important social, political, economic, and technological developments.
What hard evidence do we have that employers do not know the real substance of our graduates? The Australian Association of Graduate Employers (AAGE) reported the results of a survey of their members - they had hired more than 2500 graduates in 1988 & 1989. (97) The report said that the attributes most sought were communication and interpersonal skills and the ability to apply problem-solving strategies. Employers said that, upon hiring, they had to pay most attention to improving (give training in) these areas. If the AAGE was aware that a university had a learning paradigm that would produce graduates having an advanced level in these nominated skills (and so save them considerable time & costs), then, faculty outputs would already be the most preferred by the 'agri-members' of AAGE. Personal experience of employer attitudes towards the 'new' graduate, and the evidence of student feedback, indicates that this is not so. However, since the time of McDonald's report, there has been clear favourable attitudinal change observed in some areas (NSW Agriculture is an example), but favourable awareness of the skills of faculty outputs is still not widespread.

2.3.4 Nature/Extent of Competition

"Institutions offering agricultural and related education are concentrated in the eastern States, with 13 campuses of seven institutions in Victoria, eight campuses of six institutions in New South Wales and five campuses of four institutions in Queensland. This compares with one institution in Tasmania, two campuses of one institution in South Australia, two institutions in Canberra and four campuses of three institutions in Western Australia." (98) Tables 3.1 and 3.2 from that report are included here for ease of reference (over).

TAFE course offerings in agricultural and related education at Certificate and Associate Diploma level are numerous. Being more intensely vocational in their purpose and course structure, they are not strictly comparable with the Associate Diploma offerings of the institutions referred to above, yet they must be acknowledged as 'competitors' for students seeking the Associate Diploma qualification.

The above cited Table 3.2 shows the types and levels of course offerings by institution. Natural competitors are located under Agriculture, and only the special cases of Monash-Chisholm and Curtin-Muresk under Agricultural Commerce.

The Monash-Chisholm course, B.Bus.(Agribusiness) is really run by Chisholm and VCAH: 7 core business and 8 specialized agribusiness subjects (Frankston campus), plus 12 agriculture subjects (Dookie campus). (99) It clearly complies with the desired profile of 'a cap of commerce on a technology base'. The VCE cut-off score for admission in 1990 was 253; equivalent to a TER of 50.05. The writer considers that graduates from this course could rapidly become preferred candidates for the sort of appropriate employment to which our graduates will aspire.

The Curtin-Muresk course, B.Bus.(Agriculture) is not such a threat as the above; they have opted for a course that has a commerce thrust: "...provides skills principally in management, but with sufficient grounding in technical subjects..." (100) Their graduates will be competitors to ours, but weaker than Chisholm/VCAH's. The TEE score for 1991 was 315; equivalent to a TER of approx. 52.85.
Table 3.1  Higher education institutions offering agricultural and related education

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<th>Institution/Campus</th>
<th>Agricultural &amp; Related Education 1990</th>
<th>Institution/Campus</th>
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<td>Total Student Load (EFTSUs)</td>
<td>Total Enrolments (Number)</td>
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<td>Victorian College Agric &amp; Hortic (six campuses)</td>
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# Awards contain a substantial element of study not directly related to the agricultural & related sector
+ Estimate from data provided by institution
- Included with Curtin University of Technology - Bentley
n/a Not available

Source: Supporting Paper 1, Table 1; DEET 1989, Table 1*
Table 3.2  Number of agricultural and related coursework awards offered at higher education institutions, 1990

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<th>INSTITUTIONS</th>
<th>Agriculture</th>
<th>Horticulture</th>
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<th>Nat Res Mgmt</th>
<th>Agric Econ</th>
<th>Agric Comp</th>
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2 = 2 year associate diploma, 3 = 3 year bachelor degree, 4 = 4 year bachelor degree, G = graduate diploma, M = masters by coursework

Extract from McColl Report on Agricultural Education (Volume 1, Page 10)
To the extent that the preferred employer profile is for 'a cap of commerce on an appropriate technology base', then graduates in agribusiness (no technology) or agriscience (no commerce) cannot be seen as direct competitors in the jobs sectors that are of most importance to faculty outputs. The UNE-Orange, B.Bus.(Agricultural Commerce) is a focused agribusiness course with no agricultural technology component. Similarly, degree courses at UNE and Sydney have either an economics or traditional science focus. This distinction between the outputs of different institutions would be clearer to employers if the UWS-H outputs were clearly differentiated from the competition.

Details of courses in NSW that can be considered competitors are summarized below.

Table 2.1

<table>
<thead>
<tr>
<th>INSTITUTIONS</th>
<th>COURSE</th>
<th>CUT-OFF</th>
<th>QUOTA (est.)</th>
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<tbody>
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<td>UNE Armidale Orange</td>
<td>B.Rural Sc. Assoc.Dip. (Farm Managem't)</td>
<td>62.30</td>
<td>58.50</td>
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<tr>
<td>UNSW (?)</td>
<td>B.Sc. (Wool &amp; Pastoral Sc.)</td>
<td>63.75</td>
<td>65.70</td>
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</tbody>
</table>

For Comparison:

| UWS-H | B.App.Sc. (Systems Agriculture) Assoc.Dip. (Systems Agriculture) | 45.80   | 46.40 | 80 |
|       | *                   | 27.15   | 29.85 | 30 |

(*) No business units, except farm management. Charles Sturt also offers four highly specialized courses: degree in equine science and in wine science; associate diploma in viticulture and in amenity horticulture.


Nationwide, key players having claim (larger or smaller) to producing graduates with the desired profile, are, in estimated decreasing order:-

Degree:
UWS-Hawkesbury, Chisholm/VCAH, Curtin-Muresk, Charles Sturt, VCAH-Dookie, UNE-Orange, La Trobe (part-only those who in fourth year followed the Agricultural Economics & Business Management stream; effectively 'capping' a three year science base.)

Associate Diploma:
UWS-Hawkesbury, Roseworthy, Gatton, Curtin-Muresk, UNE-Orange, VCAH, Marcus Oldham.
The following institutions are said to use a "systems orientation" in the conduct of their courses: Charles Sturt, UNE-Orange, UWS-Hawkesbury, U of A-Roseworthy, U of Q-Gatton, VCAH-Dookie & Longerenong, Chisholm/VCAH, and Marcus Oldham.(102)

Within NSW, the strongest competition is perceived to come from Charles Sturt (degree), and from UNE-Orange (associate diploma); this competition refers as much to attracting student entrants as to the varying of graduates for comparable career positions. Though precise student numbers by course are difficult to obtain, the McColl table 3.1 gave 1990 figures for students enrolled in "Agricultural & Related Education", thus: Orange; 907, or 532 EFTSU, and Charles Sturt (Wagga); 677, or 426 EFTSU. UWS-Hawkesbury at that time was said to have 967, or 826 EFTSU, spread between the Faculty of Agriculture and the Faculty of Horticulture. The competition from these two institutions is substantial.

From a strategic planning point of view, it is necessary to regard the post 1991 surge in student applications for course entry (and the associated increase in TERs) as an aberration; it reflects both the rise in school retention rates, and growing youth unemployment. When (if) the situation stabilizes, Charles Sturt and Orange will still be competing with UWS-Hawkesbury at the two levels noted: for student entrants, and amongst graduates for positions. A continuing unfavourable TER ranking with these two last competitors would indicate that the faculty’s message was not getting through to potential student entrants.

It seems clear that there is a need for the faculty to differentiate its courses of study and the nature of its graduates to concerned publics (potential students and employers). With the knowledge of what the graduates can offer, in comparison with what employers are seeking, it does not appear an insuperable task to obtain allowed quota at an increasingly higher standard of student admissions. The faculty need only attract a somewhat higher calibre of traditional agricultural students, plus swing-over a proportion of Agricultural Commerce students, to remarkably improve TER scores. (As this inquiry concerns only the undergraduate courses, the effect on TER levels, by increasing the post-graduate proportion in the EFTSU, is ignored.)

With quota of 110 against national Commencement Enrolments (1990) of 2350; i.e., 1508 Agriculture and 742 Agricultural Commerce), the enrolment target is around 5%; which appears to be an extremely manageable figure for improvement.(98)(101)
It must be made clear that increasing TER scores is not the primary objective; rather, it is seen as a consequence of attracting more informed, and an increased component of different students to the course.

The faculty can (and is urged to) make an immediate start on differentiating its graduates to employers by implementing the recommendation that the Review Committee saw as "essential": provide graduates from all programmes with a better detailed academic transcript.(79)

2.3.5 Economic & Socio-Cultural Impacts on Employment
Syntec Economic Services generously provided for the exclusive purpose of this inquiry; copy of the "Agriculture" section of their "Guide To Growth (1991/2 to 1995/6)".(103)
Observations on "Syntec Guide To Growth".

1. Syntec finds that "On balance the influences weighing on the agricultural sector over the next five years are biased towards being positive for the industry." (104) This would be encouraging news, but it is believed that Syntec has underestimated:
   (a) the strength and duration of the political forces that (despite economic logic) will keep the Economic Community's Common Agricultural Policy (CAP) & the United States' Export Enhancement Programme (EEP) poisoning markets vital to Australia;
   (b) the capacity of the several, now independent states that recently formed the USSR, to generate either sufficient foreign exchange to pay (or desirable goods of acceptable quality to countertrade) for desired/needed agricultural imports;
   (c) the impact that the North American Free Trade Association (NAFTA) potentially has to perturb Australian exports to that region; for example, canned fruit & beef to Canada, wine & beef to the USA.

2. Syntec reports a significant growth in agricultural sector employment beginning in 1992/93. (105) It ranges from +3.7% in that year to +6.4% in 1995/96. These are tremendously important employment growth rates.

Now, statements similar to the following routinely appear in both the urban and rural press:

"650 lose their farms in NSW, says report".
* "Another 658 NSW farmers lost their farms last financial year according to ABS figures"
* "The NSW Farmers' Association said the figures were consistent with the trend of the past 20 years..."
* "Compared with the national average, NSW is doing well; the number of Australian farms dropped by 2.4 per cent." (Amanda Meade, Sydney Morning Herald of 14/5/1992)

Other reports confirm the national trend; see Graph 4 (below): prepared by ABARE for the report, "The great rural unravelling", by Alan Wood, The Australian, 16-17/2/1991)
DEET's projections of annual change in industry employment to 2001 shows for
agriculture -0.7%.(106) For "farmers and farm managers", the projected employment
growth 1991-2001 is -10.9%.(107)

From whence then comes the increased employment in agriculture?

DEET's more detailed data shows that Agricultural Services are forecasted to show an
annual change to 2001 of +2.2%.(108) This is only one facet of the 'answer' to: where
are the jobs?

There is a growing opportunity for graduate employment in the agricultural 'related and
supporting industries'. Such industries include: inputs like consulting services to farmers
and farmer groups, chemical-irrigation-machinery supply & service, and output services
to bring farm product to domestic/international markets in fresh or processed form.
D.E. Byth (Director of The University of Queensland Gatton College) stated that "There
are exciting career prospects servicing the needs of these large, dynamically developing
agricultural industries, for a wide range of professionals in science, technology and
management."(109)

The writer invited the Faculty Forward Planning Committee to address this issue in
November 1988.(110) Inter alia, it was brought to the Committee's notice that recent (at
that time) information indicated that the 'off-farm agribusiness area is now and will be
the growth area for (agricultural) graduates'.

ABS data does not yet allow the identification & quantification of these related and
supporting industries employment opportunities, but they are certainly included in the
more detailed classifications under the generic headings of Manufacturing, Wholesale &
Retail Trade, and Finance.(111)

There is another structural change in process. In late 1989, discussions with M. Squirrel
(Principal Lecturer, Property Group, RMIT), and others in the group, exposed a shift in
the pattern of investment in rural property. As family owned or managed farms were
decreasing, many were being replaced by corporate or private investors who were
entering the market less from any emotional desire to earn a living from the land, than
from a recognition that profits were possible when large enterprises are put in the hands
of professional managers who have access to capital that can fund operations in a way
that most family enterprises cannot hope to do. Some of the major players are: Colonial
Mutual, AMP, National Mutual, BT Australia, Brick Securities Rural Investment Trust,
and Ascot's Rural Property Trust.(112)(113) Employment opportunities for professional
rural managers are being created by this shift. In apparent confirmation of this perceived
trend, an ad. appeared in the Age on 25/11/1989: ACIL Australia Pty. Ltd. had set-up a
new Agribusiness Management Services division, and wanted Agribusiness Consultants
"to service the rapidly expanding corporate agricultural sector."

Socio-Cultural attitudes have hardened in their view of rural industry; growing
awareness of farm practices leading to soil erosion, pollution of rivers, chemical
residues in foods, spraying of crops with (mutagenic/carcinogenic?) chemicals, native
animal/flora
extinction, have led some to the view that "agriculture and forestry are seen as causing many of the important environmental problems, rather than contributing to the solutions."(114)

So potent have these socio-cultural attitudes (and the legislation flowing from them) become that the President of the NFF responded to them in a conciliatory manner in a recent publication; he said: "Farmers will develop better farm management principles concentrating on using less artificial inputs, longer rotational systems and plants designed to suit the environmental pressures of our time. In rural areas, farmers will take charge of the environmental debate, which will concentrate on developing sustainable productive agriculture. The challenge to the agricultural community will be to feed the world and preserve the environment at the same time."(115)

It is in such a dynamic-complex arena of socio-economic change that our graduates will find careers to assist agriculture and its related & supporting industries.

2.3.6 Existing Marketing of Faculty
On 17/3/1987, Don Lundie-Jenkins (DL-J) addressed the Faculty Advisory Committee on the topic: The Role and Function of Outreach.(116) The model used for that presentation described the various functions of Outreach in its interactions with the faculty's external publics. It is in fact (amongst other things, like placement of students in appropriate enterprises for their OCE) a model of the faculty's marketing communication targeted activities. The model is reproduced below as Figure 2.4:-

**Figure 2.4 - The Role and Function of Outreach**

- Informing Rural Industry About HAC
- Establishing Industry Contacts For Specific Student Projects and Action Research
- Accessing the Values, Perceptions and Current Issues in the Rural Community
- Liaising for Joint Extension/Action Research Projects Between HAC and Industry Organisations and Government Departments
- Obtaining Feedback from Rural Industry About HAC
- Accessing Resource People in Industry and Government Departments for Student Learning Tasks and Projects
- Placing Students for Commercial Enterprise Experience
- Supporting Students While on CEE - Staff Visits - Regional Workshops

A SECTION OF THE FACULTY OF AGRICULTURE TO ACCESS OFF-CAMPUS RESOURCES AND TO PROVIDE A COMMUNICATION NETWORK BETWEEN HAC AND THE RURAL COMMUNITY.
From discussions with DL-J, Fiona Childs and later, Jeniy Orr (the last two belonging to the corporate PR Group), it was clear that the activities of the (above) "Informing Rural Industry About HAC" Sub-System were largely actioned by the PR Group - with input from Outreach & from individual faculty staff. The additional efforts of individual staff and Advisory Committee Members with industry organizations & commercial firms is not ignored.

Though not specifically included in the model (above), there was also a Schools Liason Project. Presentations were given at selected schools to explain the course(s), to attract student applications for admission. At first, presenters were either Faculty or PR Group staff. However, over time, the PR Group employed staff to exercise this function on a routine basis, and Faculty staff as presenters became the exception rather than the rule.

A Faculty Brochure was prepared by the PR group and several leaflets by the faculty; these were/are handed out at appropriate meetings to students, Careers Advisers, Employers, etc.

Open Day & Careers Advisers Day were/are supported by faculty staff with willing assistance of undergraduates. The Faculty also mounted displays and participated as an exhibitor in the Royal Easter Show & the Hawkesbury District Agricultural Show.

Chronically starved of funds, and with much of the 'promotional' activity in the hands of the Corporate PR Group, D. Lundie-Jenkins (Senior Lecturer and Manager of Outreach) wrote to the faculty in March '89 in the matter of establishing key objectives in this area; (117) he proposed that (inter alia):-

1. That to "Attract suitable numbers and quality of students into all our programmes." must be an immediate priority.
2. That to "Make potential employers aware of the training and quality of our graduates." could continue as at present without major detrimental repercussions.

The assertion that the Faculty has not maximized its potential in both these areas of key objectives is confirmed by the findings reported in Sections 2.3.4 - Table One, and in 2.3.3. This inquiry has concluded that both these objectives should be still categorized as 'key', and new effort expended to attain them.

In Section 3 - Feasible & Desirable Changes, a plan will be proposed to achieve the above stated two key objectives.

Since returning to Hawkesbury, the writer has become the Faculty of Horticulture representative on the corporate PR Committee. It is clear that the UWS corporate objective is no longer compatible with the promotional objectives of the Faculty of Agriculture & Rural Development (or the Faculty of Horticulture). Their objective is to attract student entrants from primarily the Western Suburbs to what is being promoted as a multi-disciplined campus. The reason for this new focus is almost certainly due to the politics surrounding the formation of the UWS network; to serve the specified catchment area.
In that Hawkesbury has a 100 year-old reputation in agriculture & horticulture, corporate PR's emphasis will be largely on the new faculties, so as to project the new image of the now, multi-disciplined nature of the campus.

2.3.7 How to Attract Better/More Students?
No marketing plan may sensibly be developed unless the marketer clearly understands the forces bearing on the target audience that will persuade them to enter into the 'buying process'; i.e. the attitudes that will cause the audience to: become aware; reach comprehension; arrive at conviction; implement commitment.(118)

It was initially (and naively) assumed that particular school leavers would have formed clear career intentions at secondary school with regard to tertiary studies in agriculture, and that it was only necessary to locate the appropriate means of delivering the faculty 'message' and the preferences would begin to flow. Dr. Ern Reeder (Senior Lecturer, Department of Social Sciences, Faculty of Humanities, RMIT) exploded this simplistic notion. Career choice is seen to be a highly complex process; there is a substantial body of research on the subject, and he cited the key references.

"The dynamics of occupational choice is a complex and poorly understood phenomenon. Clearly, factors other than future occupational outlook are important..."(119) (emphasis added)

Linda Clarke published a critical review of research into occupational choice in the United Kingdom (UK).(120) Two classes of factors which relate to occupational choice are defined; Environmental, and Personal. Each of these is discussed under key headings:-

* The Environmental Factor has four headings: Home Background; Racial Background; Educational Environment; Geographical Environment.

* The Personal Factor has five headings: Gender; Intelligence and Ability; Personality; Interests & Values; Occupational Knowledge.

If we examine the findings, transpose these to the scene in Australia, then we need only add to our model (what the researcher refers to as) the "TER Wildcard". This (and other) UK data, along with some Australian findings, has been preferred to important United States data(121), as the 'occupational values' of that society are thought, a priori, to be further away from Australian 'values' than those of the UK. Our model of the School Leaver in his/her environment is depicted in Figure 2.5.(over page)

Clarke summarizes just how little we know by observing that "Due to the reliance on point-in-time surveys the process by which occupational choices develop is still a relatively uncharted area. Despite this lack of knowledge, the developmental approach to guidance has been largely adopted in this country [the UK]. Careers education and guidance now stretches over a number of years, yet there is little knowledge of what constitutes normal or successful vocational development, or at what points in the process intervention can be most effective."(122) (emphasis added)
Figure 2.5 - The School Leaver & Occupational Choice Factors
"There has been a lack of research investigating theories of occupational choice. It may be, as some critics have asserted, that American theories are inappropriate."(123) Osipow (124) in the United States lists and discusses the broad categories of US career development theory: Trait-factor, Sociological models, Developmental/Self-concept theory, Personality Theories, and Behavioural Approaches.

What is important for this inquiry is not to analyze the bases of the different theories of occupational choice, but to identify those factors that are lacking in the students' data base (thereby decreasing the possibility of their taking good career decisions), and which may be used by marketers to better inform and persuade.

It can be concluded, that both Occupational Knowledge and the TER Wildcard can be perturbing factors to good career choice decision making:-

(a) Occupational Knowledge: Clarke has the view that "Occupational knowledge is another personal factor likely to have an impact on occupational choice, but one which is probably dependent on both environmental factors (for example the type of school, resources devoted to careers education, and access to guidance practitioners) and other personal factors. Research findings on this topic are summarized elsewhere (see Clarke, 1979). Briefly these studies demonstrated the pitifully inadequate and narrow range of occupational knowledge possessed by school leavers."(125)

"...the report[ed] influence of the school and Careers Service is smaller than that of the home, and all too often the Careers Service is reported as having a depressingly negligible influence on youngsters' occupational choice."(126)

Comparable findings were reported in Australia in 1979, in the Report of the Committee of Inquiry into Education and Training.(127) In a survey of all NSW Secondary Schools, parents, students, and teachers were asked to rank 47 items under the general statement: "It is the Secondary School's task to make sure that students:-"

Findings for parents and students were remarkably similar "on the area where greatest improvement by secondary schools is required. At the top of their Discrepancy Ratings are a string of Practical Items." "...the school's performance in all Practical areas was rated so low that all Practical items group together at the top of the Discrepancy table." Key Practical items, for this present inquiry, were:

Table 2.2 - Key Discrepancy Item Rankings
It is the Secondary School's task to make sure that students...........

<table>
<thead>
<tr>
<th>Discrepancy Item Ranking</th>
<th>P</th>
<th>S</th>
<th>T (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. have been helped to choose some possible jobs</td>
<td>2</td>
<td>7</td>
<td>32</td>
</tr>
<tr>
<td>b. know about a wide range of possible jobs</td>
<td>7</td>
<td>6</td>
<td>27</td>
</tr>
</tbody>
</table>

(*): Ranking of importance of items by: P=Parents, S=Students, T=Teachers(128)

It is clear that students and parents at that time felt a great need for the type of information described; teachers did not.
This becomes all the more important when results of the National Education Survey, (129) reported that "about 61 per cent of university students and 66.0 per cent of college of advanced education students, considered that they had made a choice of vocation or career at least by the time of completing secondary school." Since only 5.3% (university students) and 7.6% (CAE students) had made their choice at primary school, the importance of providing sound career information at secondary school is highlighted.

As if in response to this failure of the careers adviser system, an evolutionary change in careers information transmission has occurred in Australia. Beginning 1989, the Ministry of Education in Victoria progressively introduced the computerised JAC & JILL information systems. JAC is an acronym for 'Job and Course Explorer'; JILL is a 'Jobs Illustrated' system. We need only concern ourselves with JAC at this point, as that is the system that the NSW Department of Education has agreed to introduce in this State. JAC consists of data bases of course and occupational information which are linked but can be accessed independently. If, for example, after finding details of an occupation the user wants detailed information about educational courses (and their providers) that will qualify him/her for that occupation, he/she will be able to move into the courses data base to obtain that information.

As at 31/10/90, there were 791 JAC installations in Victoria; of which, 338 were in government schools, 135 in private schools, 34 in TAFE centres and 5 in universities. In NSW, the programme will be controlled by the Vocational Guidance Section of the NSW Department of Industrial Relations, Employment, Training and Further Education (DIRETFE). Data bases are to be updated every six months.(130)

It is suggested that the Faculty's Senior Management Group make the necessary contact to ensure that course/occupational details are listed properly (and periodically updated) on JAC at the earliest. Contacts in NSW are James Stewart-Rattray (02 266 8614) or Lisa Smith (02 266 8003).

For potential students of agriculture this supply of balanced information is even more important; we need to overcome "the generally negative community attitudes towards agriculture [for various reasons; some economic, some environmental] and the failure of the agricultural and related sector to promote itself."(131) On this last point, it has been "suggested that a somewhat pessimistic view of the future of Australian agriculture has been fostered by farm organizations in recent years as part of an overall policy strategy. The purpose was to emphasise (sic) the problems, but the many successes and future opportunities for agriculture and agribusiness were rarely highlighted."(132)

Macdonald in the UK (133) observed of students entering tertiary studies that "The decisions (to go on to university) for these 16 year olds were not difficult. The decision-making process was often implicit and straightforward. Staying on had been expected by them, their friends, their teachers and their parents." What remained was the selection of the tertiary course/career choice. This critical decision certainly has similar inputs from friends, teachers and parents, but, in addition, is influenced by the general appreciation of these same people of the various economic climates that impact upon a career choice. It can be fairly concluded that, when the industry itself emphasizes the poor outlook, the public takes note and reacts by cautioning prospective students to re-think their career options.
The "TER Wildcard": for about a year at RMIT the writer was the Acting Principal Lecturer, Marketing Group, Faculty of Business, and an Enrolment Officer. In these capacities there was much interaction with the Selections Officer [Richard McGlashan]. Each year the marketing course averaged around 1500 applications for about 130 new-entry positions. It was astonishing to observe the incredible spread of course preferences (up to 8 were allowed) on the applications. A single applicant could have preferences at various institutions ranging over business, marketing, accounting, medicine, property, law, economics, and etc. After discussion with a large number of such applicants, it became clear that some of these were pursuing the most economically attractive career paths consistent with their TER score. Their real career choice, if it appeared at all, did so because the student had a sufficient 'score' for it.

The down-side of this observation is that there must be students with low TER scores choosing career paths (tertiary courses of study) that they do not want, but, because of their low score and the job market pressure to obtain professional qualifications, feel that they must do something (anything). They thus seek-out those courses where their TER score will gain them entry.

It is concluded that Enrolment Officers should be alerted to both these possibilities. And enrolment interviews should focus more clearly on what motivation has brought the applicant to the institution. If institutions are eventually going to have their funds related to retention rates, then having relatively large numbers of students poorly committed to the course of study (waiting, as it were, to transfer to a more desirable course) is going to become a problem of no small dimensions. Student interviews at RMIT confirmed this state of affairs. It has not been possible to replicate such inquiry at Hawkesbury; but such is recommended.

These issues of career choice, and how to better inform potential students, will be taken up in Section 3.

2.3.8 ROOT DEFINITION OF RELEVANT SYSTEMS

At the outset, the view was developed that the process to be used should be that of a primary task rather than an issue-based analysis. The organization (the Faculty) already had a certain set of activities involved with 'marketing the faculty outputs' and attracting new student entrants. The root definition (RD) chosen therefore would "lead to the model of a notional system which can be related very directly...to a well established task, carried out by a section, department, or a division of the total organization." (Wilson, 1984)(134)

Such decision (to view as a primary task) imposed the need first to undertake an issue-based analysis of how the human activity system (HAS) - the Faculty generating the outputs - was to be viewed. From the research described in Sections 2.1 & 2.2 a comparison could be made between the competencies desired by target employer groups and the competencies that the faculty demands of its outputs. This goes to the 'purpose' of the faculty: The aim of the faculty is "to produce a graduate who is competent to act in improving situations in agriculture."
Such competence will manifest itself in three main areas denoted *Systems Agriculture, Autonomous Learning and Effective Communication.*(135)

There was a definite congruence in key competencies desired by employers and those instilled (and evidenced) in faculty outputs. Accordingly, the HAS (the Faculty) could be viewed as *an educational system producing graduates whose competency profile increasingly matches the stated key needs of target employer groups*.

This outcome indicates that the faculty's 'mission' is being achieved, at least in terms of producing a graduate that has the skills necessary to become a preferred candidate for appropriate employment in rural industry.

Far from being independent of Weltanschauung (W), as Wilson recommends (136), this view became our W. In a marketing context, our key objective would have to be to differentiate our 'product' (faculty outputs) from the outputs of other tertiary institutions.

It is a dictate in the marketing process of differentiation that "the features used to differentiate the product must be both credible and important to a large number of customers in the total market." (Potts, 1987)(137) It was felt that this, our W, could best serve the analysis if it was rooted in a proven datum that was significant (for different reasons) both to faculty and to employers, and which could be used to underpin our marketing strategy.
In this way, however, we did respect Wilson's objective in formulating his dictate: that the view of the HAS would not distort the analysis.(138)

In an attempt to consider other primary task models, other root definitions were examined; but these degenerated from the general to the particular; i.e., specific requirements of particular types of employers of faculty outputs (for example, the Department of Education). They were not found to be of value to the inquiry; leading more to emphasis/de-emphasis manipulations of curriculum, rather than broad competency wants & needs of target employers in general.

The failure of these attempts did however confirm, at least to the writer, that the deviation from recommended procedure was valid for the specific case under investigation.

It seemed clear then, as it does now, that the original concept of forming graduates who were 'communicators, learners, and problem solvers' [i.e., systems agriculturalists] was (and is) a generic solution to the competency needs (in large) of rural industry in Australia in this time of great change; change imposed by brutal exposure of our key rural industries to the poisoned markets of the 'global village'. The qualification "in large" goes to the additional need, exposed by the research (and already being addressed by the faculty), of producing a systems agriculturalist who has a 'cap of commerce on an appropriate technology base'.

Thus, arising from the research, a CATWOE and a Root Definition was developed; these would then lead to elaboration into models of the subsystems (and their activities) that would be needed to achieve the desired transformation:-
CATWOE

Customers : Graduate employers

Actors : Faculty, External agencies

Transformation : Educate employers that faculty outputs already have the required competencies.

Weltanschauung : The educational system (the faculty) produces graduates whose competency profile increasingly matches the stated key needs of target employer groups.

Owners : Faculty

Environmental Constraints : Faculty funding dependent on student numbers. Level of student admissions dependent on informed community view about agriculture as a viable career. Quality of faculty outputs dependent on quality of student inputs, continuing staff expertise and attitudes. Confidence of concerned publics in learning paradigm used by the faculty.

From this perspective, the following root definition is derived:-

Root Definition: A faculty owned and operated system designed to ensure appropriate employers view faculty outputs as preferred candidates for employment. Given that graduate competencies match employer needs, but within an environment of greater accountability of new entry graduates, and declining community confidence in agriculture as a career.

The key verb in the RD is: Ensure. The key verbs that will go to 'ensuring', are:- Determine/Attract/Form/Inform

2.3.9 CONCEPTUAL MODELS

The first resolution model is depicted in Figure 2.6 (over). Models of the subsystems are shown in Figure 2.6 - continued.

- SS1 supposes a faculty mechanism to collect data from any source that has bearing on faculty publics. This data is transformed into information. Information needs are audited, and deficiencies noted for consideration as primary research objectives. The results of such inquiry will be needed by both the faculty promotion group and by the faculty group charged with curriculum development responsibility.

- SS2 supposes a faculty group charged with the responsibility of judging whether new employer wants & needs are consistent with the academic aspirations of the faculty, the cost of implementing the changes, and deciding whether the faculty should (or not) respond to these new needs by curriculum or other changes.
Figure 2.6: Model of the Situation Arising from the Root Definition

DATA FROM ANY SOURCE ON EMPLOYERS, STUDENTS

SS1
DETERMINE EMPLOYER NEEDS AND STUDENT CHOICE FACTORS

SS2
MONITOR NEED FOR CURRICULA CHANGES

SS4
INFORM EMPLOYERS: GRADUATES CAN SATISFY THEIR NEEDS

INCREASED DEMAND FOR FACULTY OUTPUTS ENJOINED

DEFINE PERFORMANCE MEASURES

MONITOR

ADJUST

SS3
ATTRACT MORE STUDENTS AND INCREASE FIRST PREFERENCES

SS5
CONTINUE TO FORM GRADUATES ABLE TO SATISFY DEFINED NEEDS OF EMPLOYERS
Figure 2.6 (continued): Models of the Relevant Subsystems

SS1

Information Needs Determined

Locate Data Anywhere

Collect Data

Analyze Data

Develop Information Packages

Faculty Management Better, Informed

SS2

From SS1 - Graduate Competencies Information

Detect Changes in Employer Needs

 Debate If Changes Desirable/Feasible

No

Yes

Modify Curricula

More Appropriate Curricula

SS3

From SS1 - Prospective Student Information

Detect If Existing Student Recruitment Plan is Appropriate

Yes

No

Modify Recruitment Plan

Implement/monitor

More Student Applications and First Preferences
Figure 2.6 (continued): Models of the Relevant Subsystems

From SS2 - Curricula Changes Needed

- Examining needs & collect resources
  - Plan introduction
  - Introduce
  - Form new graduates

SS 4

Improve faculty outputs

From SS1 - Employer Attitudes Information

- Detect if existing employer promotional plan is appropriate
  - Yes
  - Modify promotional plan
    - Implement/monitor

SS 5

Employers better informed - more receptive to regarding faculty outputs as 'preferred'
- **SS3** supposes a mechanism to attract a higher calibre/more course/career aware student entrant. Properly handled, we see new entrants better informed about both our paradigm and their own possible career paths, as well as others who might have (in the absence of information) opted for a business/agribusiness course. Discussed in Section 3.

- **SS4** supposes that the faculty's operational SS will continue to form graduates, using curriculum inputs from SS2, having the competencies both desired by appropriate employers and needed in the complex-dynamic environment of today's rural industry environment.

- **SS5** supposes a mechanism to inform employers adequately (and other concerned publics) about the high level of employability of faculty outputs. Discussed in Section 3.

- Objectives will be achieved **(ensured)** if the activities in SS1 to SS5 are successful.

- A monitoring/adjustment mechanism is proposed to fine-tune the system.

A second model is elaborated from the above and is depicted in Figure 2.7.
The activities outlined in Figure 2.6 are presented in an expanded, interactive form. It will be seen that there are two key activities depicted:-

* the promotion of faculty outputs to employers, and
* the recruiting of student entrants.

**Faculty output** promotion is proposed to be essentially a function of Outreach, Faculty Industry Groups, and External Agencies.

**Student recruitment** is proposed to be essentially a function of Outreach, and External Agencies.

### 2.3.10 COMPARISON OF CONCEPTUAL MODELS WITH THE MODEL OF THE PROBLEM SITUATION

A comparison between Section 2.2 and Section 2.4 shows that attention is largely focused on the Tactical SS of the Faculty. In particular the focus is on how the faculty has been reaching out to key defined publics - employers and potential students: this, after all, goes to the purpose of the whole enquiry. The way of reaching out to other publics (other academics, the OBU) has not been overlooked; measures to address these issues will be covered in Section 3 - 'The Marketing Plan'.

What this enquiry has shown is that the faculty is definitely on the right track in all that it is doing, except in the way it has promoted itself and its graduates.

Earlier in this report reference was made to the fact that: Many organizations attract erroneous perceptions about themselves because of their failure to undertake programmes to educate their concerned publics, or they do so, but incorrectly.
After 10+ years into the 'new' programme we still find amongst the key concerned publics, misconceptions about what it is that the faculty is doing, and a questioning of the merit of the faculty outputs. At the same time, research has shown that the faculty is producing a graduate whose competency profile approaches the 'ideal' of employers. It is in this that the faculty's mechanisms for reaching out to its publics has failed to maximize its potential. In Section 3 recommendations are made so as to overcome this deficiency.

The Barton-Gillet Company (Baltimore, Maryland) specializes in consultancy services for Institutional Marketing; they have done so for over twenty years, and have great depth of experience with universities and colleges. In a personal communication in 1991 (explanatory brochure: 'On Matching Communications Techniques to Marketing Objectives'), the observation was made that "The success of an institutional marketing program rests on how clearly audiences understand an institution's ability to serve their needs and interests." Further, "The communications process is the action-phase of marketing and, as such, must be carefully planned, budgeted, executed and monitored."

It is believed that the faculty is still at the stage of creating informed awareness in its key publics. It is Barton-Gillet's view that, at this stage, the promotional budget should have the following pattern:

- Mass Media (Publicity, Press Releases, Public Addresses, Advertising) 40%
- Direct Approach (Case Statements, Posters, Magazines, Direct Mail) 40%
- Small-Group (Meetings, Dinners, Seminars, Special Events) 10%
- Person to Person (Personal efforts of Staff and Volunteers) 10%

The general thrust, if not the specific composition of the mix of approaches, should be reflected in our planning.
3. DESIRABLE AND FEASIBLE CHANGES

3.1 OVERVIEW OF RESEARCH OUTCOMES AND GENERAL DIRECTION OF THE MARKETING PLAN

The results of the enquiry described in Section 2 indicate that desirable & feasible changes (that will constitute the faculty marketing plan) will need to consider two sorts of change.

The one involves the internal operations of the faculty promotional communications subsystem. The other involves the nature of the messages required to be sent, and the mechanisms of delivering these, to concerned publics.

The internal operations of the faculty requiring attention are:-

* Strengthening the role of Outreach so that it becomes the sole source of clear and consistent messages to our employer/prospective student publics about what the faculty does and how it is done. This role will be required of Outreach whether acting directly, or indirectly through staff or external agencies.

* The revitalization/formalization of faculty industry groups, and their bringing together of staff and industry representatives on a regular basis, so that (as a minimum):-

   (1) Staff can promote 'Hawkesbury Agriculturalists', to industry and government,
   (2) Staff can receive feedback on changes in career profiles in particular industries, and monitor acceptance of graduates in appropriate positions in those industries.

* The faculty's Strategic Subsystem (Deans and the Senior Management Group) should carry the new promotional 'message' to organizations representing employers, government and academia; the Australian Association of Graduate Employers, and the Agribusiness Association of Australia and New Zealand are prime examples of targets in this category.

Other matters, concerning the content of the promotional messages and the mechanisms of delivering them to targeted audiences, are the subject for elaboration in the following pages.

3.2 KEY GUIDE-LINES FOR THE MARKETING PLAN

William James, in his text The Will to Believe, said that "Faith means belief in something concerning which doubt is still theoretically possible, and as the test of belief is willingness to act, one may say that faith is the readiness to act in a cause the prosperous issue of which is not certified in advance." With faith in the conclusions derived from the research, we now move to recommend action in this, the Marketing Plan.
The data obtained in the research was analyzed using a marketing flow chart method (modified) that was originally reported by Bridges (1978), in an internal report from the Market Research Centre of Massey University; see Figure 3.1. (page over)

This marketing plan issues from the final hard systems phase; it is to be submitted to the Action Research Team for debate and decision as to how much of the plan is deemed desirable and feasible to implement.

The plan set-out to respect the faculty's need for financial restraint. However, it became clear that poor funding of this area, plus heavy dependence upon the corporate PR department (amongst other factors), has not allowed the faculty's messages to reach key publics overall. *It is felt that external, professional intervention is required for at least the first year of the campaign.*

The analysis showed that marketing the faculty outputs was linked with the programme to attract more students. Thus, the initial objective of the marketing plan was altered to embrace the two issues. The plan now exhibits a unifying purpose. At one end of the continuum, we use it to inform and attract appropriate students to undertake studies to fit them for defined desirable careers. At the other end, we will have used it to prepare for them an employer environment that has been made aware of and receptive to their special abilities.

In the plan, there is no differentiation of UG1 & UG3 graduates. We adopted the concept of Bawden & McKenzie in their report of 31/01/86; i.e., that the major discriminator between these students was time, that they both learned in an environment of systemic experientialism and that their capacity to transact with the physical and social environment was a matter of degree; UG3 direct and UG1 with others who will go on to transact directly. As both graduates had a common base of acquired skills, no differentiation was necessary.

This plan (Section 3) is written without systems terminology, or referencing, with the view to it being used as a briefing document for external agencies. All matters put forward in this document have been reported in Sections 1 and 2.

3.3 SUMMARY OF INFORMATION ANALYSIS BEARING ON THE MARKETING PLAN

(a): MARKET TRENDS
Though not as significantly as in the past, the national economy will still continue to depend heavily upon primary industry (rural & minerals) to underpin export (foreign exchange) earnings over the next five years (at least).
Domestic & international agribusiness operations are expected to intensify in Australia in response to deregulation measures progressively introduced and the eventual demise of monopolies; e.g., in the grains market. The demand for appropriate graduates is significantly increasing in the agribusiness sector. The corporate farming sector is also growing, from a smaller base, as a career path for graduates.
Figure 3.1 - Over Page: J.S. Bridges - The Marketing Plan Flow Chart
(Market Research Centre, Massey University, N.Z., 1978)
SECTION 1 INFORMATION/ANALYSIS

Market Trends:
- Statement of market growth over past few years - units
- Statement of market growth over past few years - dollars
- Statement of only those breakthroughs of the total figures in terms of seasonality, regionality, etc., that highlight major problems and opportunities
- Forecast of market growth for the next year - units
- Forecast of market growth for the next year - dollars

Competitive Analysis:
- Statement of the sales/share of market performance of major competitors in past few years
- A review of only those marketing elements (e.g., product, pricing, advertising) that are felt to explain that performance
- A prediction of likely competitive developments crucial to this project

Government Regulations:
- Statement of key government and legal regulations which exert a fundamental constraint on the company
- Statement of key government and legal regulations that materially affect competitors
- Prediction of likely developments of major importance

Economic Analysis:
- Statement of those economic factors which could materially affect the company

SECTION 2 CONSUMER BENEFIT & MARKET SEGMENT

Consumer Benefits:
- Definition of the benefit that is needed or wanted by a group of consumers and that the company intends to offer

Market Segments - Attitudinal Terms:
- Description of the types of people who are seeking this benefit; stated in terms of attitudes, feelings

Market Segments - Demographic Terms:
- Translation of the above segment into demographic terms

SECTION 3 OBJECTIVES

Financial Objectives:
- Sales and/or market share objectives (dollars and units)
- Profitability objectives
- Return on investment objectives
- Other financial objectives important to this company

Marketing Objectives:
- Trial
- Repeat

SECTION 4 ELEMENTS OF MARKETING MIX

Product:
- Statement of what the product must do and cost objectives
- Statement of the main components of the product
- Statement of the major features (primarily those which prove the company can deliver the benefit promised)

Product Names:
- Statement of brand name and rationale
- Statement of generic product name and rationale

Packaging:
- Individual package - statement of objectives, major strategic factors, cost objectives and rationale
- Unit - statement of objectives, major strategic factors, cost objectives and rationale
- Outer - statement of objectives, major strategic factors, cost objectives and rationale

Pricing:
- Statement of pricing objectives
- Statement of pricing strategy
- Definition of pricing structure or factory to consumer

Distribution:
- Statement of distribution objectives
- Statement of distribution strategy
- Statement of distribution tactics

Consumer Advertising - Media:
- Statement of media budget
- Statement of media objectives
- Statement of media strategy and rationale

by J.S. Bridges
State departments of agriculture, soil conservation services and the like are withdrawing from some services (e.g., seed testing) and moving to fee-for-service for others (e.g., extension farm visits). Services relinquished will be taken-up by commercial operations. Services maintained on fee-for-service will expose the public service staff operating them to real-world competition from private consultants and/or similar services from corporations.

This will entrain a call for graduate staff capable of operating in a commercial environment: changes in employee profile requirements have already occurred. Agribusiness input suppliers (and the NFF) will become more responsive to consumer and environmental forces, and to increasingly severe regulatory controls; they will have (have now) a need for graduate staff capable of taking the wider view as it relates to the consequences of rural development.

Farm holdings are expected to continue to decrease in numbers and increase in size, with corporate farming becoming increasingly common. Vertical integration in some industries (as in cotton and beef) will grow.

With most traditional areas of production remaining under international commodity market pressures (especially from the Economic Community (EC) and the United States of America (USA)- as well as import quota restrictions in several key markets), there will be an ongoing search for:

1. better export marketing of current products (with government to government confrontation on agricultural trade issues);
2. sustainable export/domestic market niches for preferred plant varieties and livestock breeds leading to changes in production patterns and providing some relief from commodity pricing pressures; and,
3. alternative crop/livestock production that will be less influenced by international commodity market pressures. Such endeavours, although continuing to need traditional agricultural science graduates, will have a special need for problem solving graduates with a world view and understanding of agricultural commerce; and this, whether they operate in a commercial, extension, or farm management role.

The demand for secondary school teachers of agriculture will remain relatively static. However, these teachers will increasingly need to have a sound understanding of and a systems approach to world agriculture, in order to make sense for their students of the causes of change in rural industry. Departments of Education must be educated to this imperative, or their teachers will eventually be reduced to instructors in basic/simple agricultural production technology. If this shift can be accomplished, then those students of this new generation of teachers who do not go on to tertiary study and return to the farm, will have been better informed than their parents and will comprise a growing, comprehending force for change within the actual production centres of the industry. A situation much to be desired.

In summary, there will be an increasing demand in many sectors of the industry for agricultural graduates who understand and are able to respond to the changing agricultural environment. That is to say that, though traditional agricultural scientists will remain in demand for specific R&D/Extension occupations, a new 'problem-solving' agriculturalist, with a 'a cap of commerce on an appropriate technology base', will increasingly be needed by employers.
(b): COMPETITION

Agricultural science graduates (science oriented) are still issuing from the traditional tertiary institutions in all states. But a sea-change in education for agriculture is already occurring. Responding to perceived market needs, agribusiness courses have been made available. Students interested in agriculture, but not necessarily in its science, are now able to follow a trend developing in tertiary education and opt for business studies; specifically, the business element of agriculture. However, the research indicates that employers, though some do have needs for pure scientists and pure agribusiness staff, have a greater need for generalist graduates having 'a cap of commerce on an appropriate technology base'; i.e., those of the nature of faculty outputs.

Key institutions having claim (larger or smaller) to producing graduates with the desired profile, are:-

Degree:
UWS-Hawkesbury, Chisholm/VCAH, Curtin-Muresk, Charles Sturt, VCAH-Dookie, UNE-Orange, La Trobe*.

Associate Diploma:
UWS-Hawkesbury, Roseworthy, Gatton, Curtin-Muresk, UNE-Orange, VCAH, Marcus Oldham.

(*) : In fourth year can follow an Agricultural Economics & Business Management stream; effectively 'capping' a three year science base with a commerce focus.

It is noteworthy that Chisholm & VCAH in their joint submission for course approval of 12/7/88 strongly pushed the concept: "The findings of the evaluation of community demand conducted by VCAH & Chisholm suggested that this equal mix of agriculture & business training represented an important under-serviced segment of the graduate market. This is consistent with trends appearing in the United States and the United Kingdom." This is an important observation; there is a need for agriculturalists with business training. It does not say that there is a need for pure agribusiness graduates.

None of the above cited courses is experientially based. Some of the courses are said to be 'systems oriented'; some 'strongly' so.

It is expected that the agribusiness courses will have attracted students that might have entered conventional business courses. Other students are now and will continue to be attracted to specialized TAFE courses. It is therefore to be expected that there will be increasing competition in the market place, both for student recruitment and, to a lesser extent, for graduate placements. Tertiary institutions will increasingly find themselves in the American situation of intense competition for worthy students; and they will eventually be forced to undertake the same sort of intensive promotion of their courses (and of their graduates) as do now the Americans.
(c): REGULATORY ENVIRONMENT

The Accreditation Committee of the NSW Office of Higher Education having re-approved the UG1 & UG3 programmes in 1989, there appears to be no legal restraint upon the faculty to it promoting same: in fact, it has been urged to do so.
What probably needs to be taken under consideration at a very early date is the attitude (consent?) of the administration of UWS-Hawkesbury and of UWS itself. This refers not so much to the content of the planned promotion, as to the proposed by-passing of the Hawkesbury P.R. Department, in highly faculty specific areas. This perceived need has arisen due to UWS-H adoption of objectives to promote the growing multi-disciplined nature of the campus.
Agriculture (and Horticulture) will take a back-seat to newer faculties; eg, Management. The faculty can little benefit from this; at a time when an intensive market education programme is dictated.

The closest of contacts must be maintained with the NSW Department of Education in order to ensure that our graduates who target that career, and who comply with the additional studies requirements, continue to be eligible for admission as agricultural teachers.

The 'Truth in Advertising' regulations will require that reference to certain unique aspects of the course: experiential/project based learning, be referred to as part of the learning paradigm of the faculty and not of UWS-Hawkesbury at large. This is not perceived as a negative. The faculty will build its own reputation insulated from the activities/reputation of any other faculty, either at Hawkesbury or within the UWS network of institutions.

There are several issues crucial to the promotion:-

* staff available to resource the competency needs of the four streams. These human resources should preferably be on faculty staff. This is especially true of the commerce component; pure business studies (in another faculty) will not be integrated into the rural market environment and will be inadequate. The faculty appears largely to have these resources.
* staff must commit to actively endorse the core promotional platform to students, and to members of the target publics in their own networks, or contacted through faculty activities. This implies understanding by staff that the faculty is now clearly saying that its purpose is not to produce University of Sydney, and etc., agricultural science clones. Rather, its purpose is the formation of graduates capable of addressing, and providing solutions to a wide range of rural 'problem' situations. The expression 'providing solutions' implies that graduates are analysts/problem solvers having an appropriate balance between technical/commercial skills. Where necessary, graduates will call upon others (in their network) for other needed expertise; all to be incorporated in the global 'solution'.
* members of the Old Boys Union (OBU) will need to be drawn to a (hopefully) supportive, or at worst, a neutral stance. An educational (PR) programme is outlined in the plan.
(d): FACULTY OBJECTIVES

The plan has been designed to be totally consistent with the faculty's internal graduate output mission, but to widen this mission by including information transmission objectives for its key publics. In essence, what the plan does is to recommend a method of formalizing in the mind of the several identified publics, exactly what the faculty has been doing, but which it has not promoted in a concerted or programmed fashion. The faculty has, if anything, emphasized the learning paradigm rather than the different nature or capabilities of the graduate issuing from that environment. In marketing terms, the focus has been on the excellence of the production technology, and not upon how the product of that technology meets consumer needs. The proposed marketing plan addresses this situation.

(e): CONSTRAINTS

If we assume consent of the administrative body/bodies of the University to the plan's thrust & content, then the single key restraint remaining is the availability of adequate funds to implement the programme. From the start it was assumed that, as always, funds would be 'tight'. But it is doubted that the faculty will early attain its promotional objective unless the skills of external agencies are recruited. Without the faculty's own message going out to its targeted publics (using whatever promotional tools are required), no improvement in the situation can be forecasted. In short, if the faculty continues to depend on Hawkesbury PR to achieve a faculty objective that is at variance with corporate objectives, it will be disappointed. Outreach must grow and take control of the programme and be the sole 'voice' - acting alone or through external agencies - between the faculty and its publics.

As will be seen, costs to mount the programme essentially relate to fees to external agencies, salary increase in Outreach, new printed materials, ( a new video?), mailings and functions. Production costs associated with the replacement of printed materials/video will be non-recurring. But the costs of committed internal staff and external PR agency activities, at a level higher than before will represent recurring incremental costs.

(f): RESEARCH BEHIND THE PLAN

All essential research has been completed and is reported in Section 2. Statements and conclusions in the plan relating to consumer needs, opportunities, competitive threats and etc., are drawn from the research findings. If assumptions have had to be made, they are so designated.

This revised plan is intended for submission to and debate amongst the members of the Action Research Team (R. Bawden, D. Lundie-Jenkins, R. Macadam).
(g): OTHER POINTS & MAJOR CONCLUSIONS

Concerning Employers: -

The fons et origo of the situation that the plan addresses is that we have for years produced a highly employable graduate who is different, highly competent, but unheralded. Employers who have recognized the different capabilities have done so through the personal experience of employing one of our graduates. But it should not have been expected that employers would see beyond, what they perceive to be, the personal qualities of the individual. And so, employers have not moved to infer from the particular, the general case for our graduates. So difficult is it to 'get across' a new idea and replace an old one that sales managers have a maxim for how their sales people should act in such circumstances: Tell them what you are going to tell them; Tell them; Now tell them what you've just told them'. This is the objective of the plan

Faculty outputs are very largely not differentiated by employers from graduates of other agricultural courses. Thus, our graduates are usually matched against an entry job profile that is really that of the traditional science (and now agribusiness) graduate - which our graduates are not.

Even for those of our graduates who have followed a technology stream, the academic transcript they receive (even the most recent model) does not strongly support their claim to 'expertise' in the way a traditional transcript does; at least in the eyes of an employer. This is very important at the stage when employers are settling on a short-list for interview. It is believed that many of our graduates could have carried the day if they had reached interview. Many did not. The faculty has been instructed to remedy the transcript given to all graduates.

Many (most) employers are not selecting entry graduates for research/science positions. The position to be filled is usually that of a (say) 'management trainee' in sales, marketing, extension, farm management, etc., for which many of our graduates would be ideally suited. But the barrier to entry (interview) is the job profile for either an agricultural scientist (who will be trained in business) or, a business graduate (who will be trained in aspects of agriculture relevant to a specific sector of industry).

By clearly differentiating our graduates in the minds of employers and by supporting them with a more appropriate transcript, not only will the essential problem of barriers to interview for placement be resolved, but so too will the objective of stimulating informed demand for our graduates to fill positions (highly appropriate to their qualifications and to employer needs) be accomplished.

Employers show little interest in entry-level graduates having had 'work experience'. It is believed that employers relate 'work experience' to vacation and fill-in jobs; they have not been educated to the industry specific training that flows from the OCE phase or from industry project-based learning. It is necessary to educate employers to the 'industry internship'/professional experience' nature of these learning experiences. Research published in the USA indicates that we could probably differentiate our
graduates on this aspect alone. In Australia, RMIT has done this very successfully in its Faculty of Business, for accountancy, business administration, and marketing students.

Employers generally feel that they are not consulted as to the formation of graduates that they are ultimately expected to employ. It seems clear that the faculty should empower staff to form consultative industry groups and to have separate, regular meetings with employer representatives in each of the four streams. Such meetings would serve three purposes: educate opinion leaders amongst employers; serve as a high level forum for PR purposes; acquire data to guide future faculty direction and resource allocation. This subject will be addressed in the Plan.

**Concerning Present Undergraduate Students :-**

They were found to be vague (anxious) as to where they see themselves fitting into the rural employment scene. Post Phase I students realize that they will not be graduates of the traditional scientist type. But equally they did not have a clear picture (perceived role model) of the 'type' that they will be, or of the duties for which they will be best fitted. This lack of identity or clear purpose will vanish when students are acquainted with employment role models in each of the four streams. **Consequent upon a student identifying with a role model will come the establishment of purpose; thereafter will come the selection by the student of an appropriate course of self-directed study to satisfy that purpose.**

If we address a systems model of the faculty from the perspective of students, both as inputs and eventual outputs, then should we not have expected confusion and anxiety in the student body if the purpose of the system was not as clear to them as it was to us? We did focus on the competencies needed; we gave little guidance as to the career roles where these competencies would be exercised. And few students brought these career understandings with them from secondary school.

There are certain skills that all employers rate very highly and actively seek in candidates for employment; they are: communication, interpersonal, business and, to a lesser extent, computer skills. Students should be advised of this on day one of entry to the course; it should be featured in the Phase Manuals. Students should be encouraged to gain excellence in these skills, and be able to evidence their attainment.

**Concerning Faculty Staff :-**

Staff will need to fully support the programme in three areas:

1. by endorsing the fitness of our graduates to take-up specific categories of positions in rural industry to members of employer publics that they meet in the course of faculty and professional activities.
2. by expressing the same conviction to Careers Advisers, and to school-leaver groups and their parents.
3. by reinforcing to enroled students that their course of study will lead them to wider & different career opportunities than is available to traditional agricultural science graduates. And that these careers are important for the industry, for the economy and for society at large.
All staff (myself included) can recall students with whom they have worked, who were still unclear at the time of graduation assessment as to the specific employment direction in which they were headed. Staff find it much easier & rewarding to efficiently resource students the earlier the student is able to establish a clear career objective.

The early establishment of career objective will be more common when students are clear from day one as to career options issuing from a particular course of study. Early selection of career objective will materially affect the wholeness of a student's selected course of study; less blind-alley projects will be engaged. As a result, students will not only be better resourced and directed by staff, but will graduate at a higher level of understanding, due to the overall greater cohesion of their course of study.

Concerning Prospective Students :-

The essential message we have transmitted to school-leavers is that, in our faculty, one can arrive at the goal of a degree in applied science in agriculture by following a non-traditional course of study. It would seem clear that the content of the message is inadequate. In an internal document of 13/6/1989 (see Appendix Two), it was observed that "...the program be subject to honest promotion which emphasizes how it differs markedly from other Bachelor of Applied Science programs..." From reviewing recent faculty brochures/handouts (for example: "A clarification of the Hawkesbury System"), this issue has been largely addressed. In the writer's view it can be further progressed.

In addition, it is essential that our message contain the ideas that : our course has four streams; depending upon the course of study chosen, graduates will have been trained as agriculturalists who are problem solvers with a 'world-view' and would naturally gravitate towards on- or off-farm positions leading to broad management roles (as opposed to a perhaps narrower career of scientific thrust) in rural industry.

This is truer for those students who have not opted for a teaching career and some differentiation may be required. However, let us be clear that a student following the 'teacher' stream will have complied with all course requirements (and more) and really has the option to pursue a non-teaching career, if so desired.

In transmitting this message it will be necessary to provide some specific role-model examples that will put into concrete form the general sorts of career path that a student could aim towards. This has not been done well in the past.

It must be assumed that by simply transmitting the message recommended above, our capacity to attract a much larger pool of potential students would be assured. This is particularly true in the 'agribusiness' area; it would reflect the present national trend for students to gravitate towards business studies in general and away from pure science studies. It will also be true, but perhaps at an initially lower level, for the rural development area. It is nevertheless an area of great potential growth that should be fostered.

By being frank about the course, and the possible career paths, the faculty must forecast to lose some students who have decided on a career in the science of agriculture, or in
pure agribusiness. However, it is expected that the net result will be to attract
substantially more students overall. And, most importantly, these students will enter the
faculty with a clear understanding of the general areas of employment waiting for them
upon completion of their studies. It is also expected that some students previously
gravitating to commerce or agribusiness studies will choose the broader option offered
by the faculty.

3.4 CONSUMER BENEFIT & MARKET SEGMENTS

Before considering the consumer benefit that is needed or wanted by employers, we
need to focus on our several publics and establish if there are significant different needs
from segment to segment.

Our publics are:
- Employers of secondary school teachers of agriculture; public and private sectors.
- Agribusiness & Rural Development agencies; i.e., suppliers of inputs and services to
and/or handlers of outputs of rural industry. Included in this category are agribusiness
enterprises, banks, state departments of agriculture & like government agencies (e.g.,
Soilcon), marketing organizations (either statutory [like the AMLC] or grower based
[like the ag. co-ops or the breed societies]), local government (or other) regional
development groups (like the Parkes/Forbes or the Hunter groups).
- Employers of farm managers; corporate or private.

The special case of agricultural teachers is excluded from the following discussion.
Their educational profile is determined by public service regulations; eg., "The
Requirements For Classification As A Teacher In The New South Wales Education
Teaching Service", issued by the NSW Department of Education.

Analysis of needs of all other seemingly disparate segments shows that the groups are
homogeneous in their preference for staff who are problem solvers/situation improvers,
good communicators, and work well with others (both staff colleagues and clients).
Hereafter, these will be referred to as the Mega Skills.

The groups are also homogeneous in their preference for new entry graduates to have a
'cap of commerce on an appropriate technology base'. Hereafter referred to as the Core
Skills.

If we use the parlance of the game of poker, then employers regard an applicant's core
skills (the tertiary award) as the table stake that permits entry to the game (the job
interview). But it is the comparative excellence in development of the mega skills
amongst the players (the job applicants) that decides who will take the pot (the job
offer).

It therefore seems clear that a desirable promotional programme would need to be built
around the mega skills common to all our graduates, but it would also have to have the
flexibility to allow for four separate levels of refinement; i.e., a means to allow the
description of the different balance in the technology/commerce core skills of the graduates from each of the four streams.

The promotional plan has been structured to comply with these dictates.

3.5 MARKETING OBJECTIVES

The principal objective is to create informed awareness in several publics as to the highly employable nature of graduates issuing from the faculty. When achieved, it will lead to :-

1. willingness amongst targeted employer publics to trial the graduates in the specific job categories for which they are most appropriate,
2. conviction amongst school-leavers (intending students) that courses offered by the faculty will serve as recognized training for diverse, specific, and important careers in rural industry.
3. growing awareness in the public and private sectors of rural industries (and amongst agricultural educators) that faculty outputs are not only capable of taking-up the new sorts of positions being created, but also able to offer policy makers and top managers an appropriate methodology for viewing, and dealing with, the complex issues being precipitated by the world-wide changes (and their pace) in agricultural and related industries.

It is expected that positive response will be recorded for Objectives (1) & (2) during the first 12 months of the promotional programme. It will be measured by a mix of indicators, such as :

For Objective (1); by graduate job placement rate, no. of vacancies notified directly to the faculty, increase in registrations with Outreach for OCE purposes, increase in student major project listings, employer requests to interview members of the graduating class.

For Objective (2); by the no. of enquiries from school-leavers and their parents (especially from non-traditional sources), increased attendance at open day and career activities, increased no. of enrollment first preferences, and an increasing TER score of applicants.

Objective (3) will take a longer time to achieve. Its impact will be felt in an increased flow of research projects (for staff & students), demand for post-graduate studies and industry short-courses, expanding demand for the faculty to provide consulting services to major rural industry bodies, and requests from other institutions for staff to present papers and join symposia.
3.6 MARKETING STRATEGY OVERALL

(a) Product Positioning

Our graduates are uniquely qualified to take-up positions leading to management careers in diverse sectors of rural industry. Our graduates must be differentiated from agricultural science graduates; they are different in formation & career aspirations: they should no longer be perceived by employers as being natural competitors in the jobs market. Using the same reasoning, our graduates must be differentiated from the now appearing agribusiness graduates.

(b) Market Demand

We propose to stimulate primary market demand for our graduates in the career areas (positions) for which their academic formation suits them. The research shows that there is significant and increasing demand for graduates such as ours. Employers, unaware of the real nature (breadth of valued competencies) of our graduates, do not yet perceive them as preferred candidates for a host of appropriate positions. Our objective is to effect such change in employers’ perception, that our graduates become the preferred candidates for the growing number of appropriate career positions

(c) Promotional Strategy

1. Promote the different nature and mega & core skills of our graduates to targeted employers. We will stress the suitability of our graduates to fill certain types of positions. We will explain how our graduates have already served an industry 'internship', through their OCE & project-based learning experiences. We will inform these employers why our graduates can be productive employees with a minimum of in-house (induction) training.

2. Promote to schools' career advisers and to school leavers (and their parents) the wider selection of career paths available to our graduates. Provide examples of these careers (role models). Point out how many of these careers would not usually be available to traditional agricultural scientists, or to agribusiness graduates.

(d) Communication Strategy

The central message will almost exclusively be transmitted by print (brochure) and by personal representation. It will embody the concept that our graduates are formed to develop capabilities that are much needed by employers operating in a complex and changing rural environment. Certain mega skills, on top of a base of agricultural technology and commerce (the core skills), fit them for a wide range of responsible positions in the rural industry. Our copy strategy must set our graduates apart from traditional agricultural scientists/agribusiness graduates. Our graduates formation is different, so too their career direction.
(e) Brand Image

It had originally been thought that the brand image that most nearly satisfies the requirements of the graduate profile was that of a Rural Analyst. The generally understood image of an Analyst is that of someone trained to explore problem situations, define root causes and implement the appropriate remedial action. The essential objective of our learning paradigm is fairly seen to be the vehicle to do just that; develop analysts for the rural industry. However, upon extensive reflection, it became clear that a 100-year tradition of respect by all rural industry for Hawkesbury (institution and graduates) was not to be ignored. We therefore revert to the 'brand' of Hawkesbury Agriculturalist. Such general brand for our graduates does give us the freedom to particularize the mix and balance of competencies in graduates issuing from the four different streams.

(f) Marketing Research

Elsewhere it was noted that the faculty will need to develop a set of indicators so as to monitor/assess the effectiveness of the campaign. Some indicators have been proposed (see 3.4 Marketing Objectives). Unless the faculty holds historical records of all the indicators eventually chosen, then quantitative analysis of the new plan's effectiveness will not be possible in the first year; only subjective evaluation. Of course, enrollment preferences in past years will be available as an indicator for increases in enrollment. But data on past graduate placements in appropriate jobs may present problems. This argues for the faculty to come to an agreement with graduating students to the end that the faculty will be promptly informed when and in what capacity each graduate is employed. This will ensure that, in future years, the faculty will have a reliable data base on each graduating class.

3.6 ELEMENTS OF THE MARKETING MIX

(a) Product

We must convey to our publics that our graduates have been trained to operate as Hawkesbury Agriculturalists; i.e., both UG1 and UG3 students have been trained in the areas representing the mega and core skills. The UG3 graduate applies these skills at the enterprise level. The UG1 graduate applies the same skills, but at a higher level of complexity; i.e., with people who control organizations (producer, agribusiness, or government).

It is not proposed that we should change the name of our degree or diploma. Rather, it is suggested that copy will project the concept of the 'Hawkesbury Agriculturalist' in a generic sense, so as to drive home what it is that our graduates really do.

Graduates will have acquired a body of industry related experience during their industry 'internship'; i.e., the OCE phase & the project-based learning experiences. This aspect of the graduate's profile can be made uniquely significant to employers, if it is placed in the context of an industry appropriate series of internship experiences.
Depending upon the stream chosen for study, the graduate will have acquired an industry related technology base; this is less true for teachers, who may have opted for a generalist formation. But graduates from the three other streams may be differentiated by referring to them as: Hawkesbury Agriculturalist and identifying the study stream, e.g., (Farming Systems).

In summary, the three key elements in the product profile, which must be conveyed in all copy, are:

1. **Core skills** (technology base and commerce experience)
2. **Mega skills** (problem-solvers, communicators, people skills)
3. **Industry-specific 'internship'**

(b) **Price**

There is a tendency for marketers to overlook the 'price' factor in non-profit marketing situations. Who puts a dollar value on the 'selling-price' of a religious philosophy, or a political party's platform, or a health education programme? But there is a price to be paid by the customer. It is the personal & social consequences of abandoning certain beliefs and adopting others. The price may be heavy or light, depending upon the circumstances, but there is a price. Once we have a fix on the 'price' to be paid by any segment of the market, then we will have a fix on how much effort we must expend on that segment. And if it is worth it.

In proposing to change the marketplace's perception of our graduates, we are on fairly safe ground. The faculty did not mount an orchestrated campaign about the nature of the new style of graduates when changing to the new learning paradigm. Thus, the traditional image of the Hawkesbury graduate has been diluted over time through employer experience. Some reactions were initially quite unfavourable; one thinks of the NSW Dept of Agriculture. But even this attitude has changed for the better over recent years.

**However, we may say that, even though the overall attitude to our graduates is better, the nature of our graduates and their place in rural industry is not clearly understood at all.**

It is considered that the case of the Old Boys' Union (OBU) is too important to ignore; OBs are scattered throughout the rural industry and some have influence and power. This matter will be discussed in the Public Relations sub-section in this section.

(c) **Promotion**

Promotion has four components, they are:

1. Advertising (in all its forms)
2. Publicity (or Public Relations)
3. Personal Selling
4. Sales Promotions
There is no role for Sales Promotions in this situation.

Advertising, Public Relations and Personal Selling components of the planned promotion will be considered in turn.

1: Advertising

It is suggested that the principal advertising tool be a high quality brochure of around A4 size.

It should include the following five characteristics:-
A. Section dealing with the development of core & mega skills.
B. Section dealing with the notion of 'industry internship' through the experiences of the OCE & career directed real-world projects.
C. Four subsidiary sections, each dedicated to one of the study streams, and outlining the competencies appropriate to that stream.
D. Provision of a pocket on the inside back-cover; intended to receive an insert. The insert to be produced annually; to be printed both sides; to be divided into four areas (the four streams); to show photos of selected graduating students and to state the nature of their OCE and the title of their major project for graduation. Inclusion of students will be on merit and upon recommendation of the appropriate staff.
E. Brochure design to incorporate a tear-out reply paid post-card asking the faculty to contact. Nominated purpose of the contact could include: possible job vacancy; join Outreach host group; possible research project; arrange careers presentation.

Sections A, B & C should feature career examples, or role models. If such structure is followed, the brochure will serve all our publics.

The more recent brochures/handouts produced by the faculty go a long way to satisfying some of the above demands. But, it is considered that a professional external agency would be able to draw all the threads (A to E) together to produce a document that would fully serve the needs of employers and potential students.

It is recommended that funds be found to produce a video that would have the same sort of message in thrust and structure as the brochure. The availability of the video would materially reduce the expected heavy load of personal presentations to our various publics. Even if used by Hawkesbury PR staff on school visits, it will still project the faculty's message; not that of UWS, or UWS-Hawkesbury. On a stand-alone basis the video will also provide a solution to reaching two key publics:
- interested, small employers, and
- parents & citizens associations.

Outreach has long been developing a data base of clients and students; it is recommended that funds be used to refine/expand this essential activity as a priority. This is consistent with Outreach being the controlling 'voice' of the faculty. It is not possible, in the view of the writer, that it can exercise its proposed function in the continuing absence of an efficient data base.
In order to introduce the brand 'Hawkesbury Agriculturalist' into industry parlance at the earliest, it will be necessary for the faculty to use it in all verbal and written communications. The intention is to differentiate our graduates to employers, and to differentiate our faculty to prospective students/parents and careers advisers.

Each year, around September, school-leavers are starting to firm-up their preferences. It is recommended that the faculty take one ad. per week for four weeks in the Higher Education Supplement of the SMH and/or The Australian. The ad. needs to contain: -
* List of courses and their UAC codes.
* List streams of study available.
* Solicit enquiries; provide name of a staff member and a 008 phone no., mail address.
   (Discuss on phone and mail a brochure to those wanting more details.)
* State multi-disciplined campus.
* State that there is college residential accommodation.
* State rural environment, college farms, near Sydney.

At the earliest possible time, rewrite course details that appear in such publications as 'The Directory of Higher Education Courses', that is reprinted all over. It will be necessary to bring out that the different learning method produces a different, non-traditional type of graduate. To the uninitiated, this does not come through at present.

At the earliest possible time, contact J. Stewart-Rattray at DIRETFE to ensure that course and career details are entered on the JAC (Jobs and Careers) computer programme, that is now being introduced to high-schools. (See Section 2.3.7(a))

2: Public Relations

Existing activities of the Hawkesbury PR Department are described in F. Childs' memo of 18/11/87 (see Appendix Three). The general activities involving promotion of the faculty as an UWS-Hawkesbury entity should not alter. What should alter is that the faculty's highly specific messages relating to recruitment of students and raising employer awareness are to be delivered by Outreach using whatever method it deems appropriate, including an external agency under its direction.

As a guide only, a proposal from The Journalists Agency is included as Appendix Four. Preparation of the pre-launch materials and actioning of the plan is costed at $4000.00. Ongoing activities (based on committing 4 days/month) is costed at $1600/month.

Outreach activities should continue (and grow) with the same changed message, or thrust. Don Lundie-Jenkins' memos to the faculty of 3 & 23/3/89 (see Appendix Five) should be strongly supported and the proposed initiatives funded. It is recommended that the faculty brochure that was then proposed should be the brochure above described. It is also recommended that an additional staff appointment be made to Outreach. The appointee should have a promotional/marketing profile and be responsible for both general marketing management of the unit (in all areas) and for school-leaver recruitment activities specifically.
Expense will largely relate to pre-launch preparation of the recommended printed materials, video, and the PR campaign to be launched by an external agency.

Faculty PR activities should be expanded in specific areas; the funding will probably have to be from within the faculty budget.

Areas are :-
1. A campaign directed at OBU members. There are two broad areas of activity;
   (a) articles describing the 'new' faculty mission in the Journal/Mailing and,
   (b) arrange an annual dinner (or other function) sponsored by the faculty on campus for selected Old Boys.

That the U.S. concept of **alumni associations** [and the funding & bequests they bring with them] has not been explored at Faculty of Agriculture level, is nothing short of tragic. This could be that start.

2. Appropriate staff groups be empowered to set-up a select panel of employers from each of the four streams. Meet regularly. The stated purpose would be to evidence the willingness of the faculty to listen to and, where possible, respond to employer needs. Such meetings would provide an opportunity to indoctrinate opinion leaders across the four employment streams as to the possible place(s) for our graduates in those streams. It is to be noted that from amongst the industry members of these panels, the sponsorship of Professorial Chairs (such as Fairfax Foundation has just provided to the faculty, Elders provides to Chisholm, and Westfarmers provides to Muresk) and other sponsorships can be looked for.

**Four separate industry panels will provide the faculty with inputs that a Course Advisory Committee cannot.** Such panels will also give direction and support for short-courses for the industry needs that are voiced in those forums.

3: **Personal Selling**

Elsewhere, the three dimensions of staff activity: with publics generating future students; with present course students; with employer publics, was described. These activities represent the personal selling component of the plan. (See 3.2(g), Concerning Faculty Staff.)

Staff interact with government personnel, with large and small commercial organizations, with growers and grower groups, with school leavers, parents & citizens groups, Careers Advisers and with the press. At all times, staff should act to transmit the thrust of the messages formulated and approved by Outreach, according to the nature of the public being addressed.

Staff in the faculty's strategic subsystem have a particular personal selling objective: to reach out to peak employer organizations like the Australian Association of Graduate Employers, and to particular key employers whose policies on graduate selection set benchmarks; eg., the state departments of agriculture, Soilicon, and others. To the writer, the Deans and the Senior Management Group in the strategic subsystem, should be as much bound to convey only the Outreach-approved messages to the publics they contact, as all other staff.
(d): Place

In the context of this plan, the concept of Place in the marketing mix reduces to the ongoing series of decisions as to how to contact the representatives of the several publics; i.e., go to them by mailings, video, personal visit, or bring them (all or some) to the campus for special meetings, lunches, reunions or for open/career advisers day.

The campus is now well provided with a conference centre, motel, and executive dining facilities. These must loom large in personal selling plans; especially those of the staff of the faculty's strategic subsystem.

CONCLUSION

Elsewhere the observation was made that: Many organizations attract erroneous perceptions about themselves because of their failure to undertake programmes to educate their concerned publics, or they do so, but incorrectly. This enquiry has identified that the faculty has put considerable effort into promoting its learning paradigm. It has not put planned effort into explaining to employers the consumer benefits of its product (graduates). In this it has failed to maximize its true potential.

Promotion of its course to potential students has been criticized for not making clear the very real difference between it and other courses leading to similar nominated awards. Recent redirection of the promotional message has gone some considerable way to redressing that situation.

This marketing plan addresses both issues. It proposes a course of action that is intended to maximize graduate placement in appropriate positions, and to increase the number and quality of student applications for entrance. Cost estimates are presented over page.
### 3.8 COST ESTIMATES (INCREMENTAL*) OF THE MARKETING PLAN

<table>
<thead>
<tr>
<th>ITEM</th>
<th>COST-FIRST YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. External PR Group</strong></td>
<td></td>
</tr>
<tr>
<td>Pre-launch preparation</td>
<td>4,000</td>
</tr>
<tr>
<td>4 days activity/month by 12 months</td>
<td>19,200</td>
</tr>
<tr>
<td><strong>2. Outreach staff addition</strong></td>
<td>35,000</td>
</tr>
<tr>
<td><strong>3. Telecom '008' number for NSW region</strong></td>
<td></td>
</tr>
<tr>
<td>Installation $160, Exchange line $173</td>
<td>333</td>
</tr>
<tr>
<td>Line rental $20/month by 12 months</td>
<td>240</td>
</tr>
<tr>
<td>Calls (say)</td>
<td>1,000</td>
</tr>
<tr>
<td><strong>4. SMH additional adverts</strong></td>
<td></td>
</tr>
<tr>
<td>11cm by two column $420 by 4 insertions</td>
<td>1,680</td>
</tr>
<tr>
<td><strong>5. Video production (15 minutes)</strong></td>
<td>20,000</td>
</tr>
<tr>
<td><strong>6. New brochure 3000 by $1.25</strong></td>
<td></td>
</tr>
<tr>
<td>Annual insert 1000 by $0.35</td>
<td>350</td>
</tr>
<tr>
<td><strong>7. Entertainment</strong></td>
<td></td>
</tr>
<tr>
<td>Industry groups by 4 by 10 members by 3 meetings p.a. by $10 (Pioneer Room)</td>
<td>1,200</td>
</tr>
<tr>
<td>OBU groups by 2 by 30 members by 1 meeting p.a. by $10 (Pioneer Room)</td>
<td>600</td>
</tr>
<tr>
<td><strong>8. Agribusiness Association of Australia &amp; N.Z.</strong></td>
<td></td>
</tr>
<tr>
<td>Corporate membership</td>
<td>250</td>
</tr>
<tr>
<td>Conference fee</td>
<td>750</td>
</tr>
<tr>
<td>Travel &amp; accommodation (say)</td>
<td>800</td>
</tr>
<tr>
<td><strong>9. Additional marketing research p.a. (say)</strong></td>
<td>1,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$90,153</strong></td>
</tr>
</tbody>
</table>

(*): Note that estimated costs are incremental to existing activities. What is changing is not so much the way of message delivery (though this will be beefed-up), but the content of the message. External PR activities would continue for no more than 12 months, maybe less. Their activities (plus others) would be taken over by the new Outreach appointee.
PLEASE NOTE

The greatest amount of care has been taken while scanning the following pages. The best possible results have been obtained.
A PROFILE OF TOMORROW’S AGribusiness LEADERS

Ian Fairnie, John Stanton and Lisa Dobbin

Introduction

AGRI-MASS (Agribusiness Management Aptitude Skill Survey) was carried out in the USA in 1987 by Litzenberg and Schneider (1988) and followed a survey of Texas co-operative managers in 1983 (Litzenberg Gorman and Schneider, 1983). Discussions with Dr Litzenberg in 1987 led to the decision to conduct a similar survey of Australian agribusiness managers during 1988. The aim of the study was to provide comparative data to the US study, and to enable Australian educational institutions to understand which attributes are valued highly by potential employers of their graduates.

Materials and Methods

The survey instrument was the same as the one used in the US AGRI-MASS study of 1987, modified only in the substitution of a few words for those in more common use in Australia.

Three sets of survey forms, and a covering letter of explanation, were mailed out in February 1988 to agribusiness managers on the Muresk mailing list, and to persons selected by Agrimark Pty Ltd, a Melbourne based consulting firm. Each recipient was asked to send one set of forms to each of two colleagues within or outside that particular business. Each set of forms contained three survey instruments, labelled and colour-coded to obtain data related to attributes desired in junior (entry) level, middle level or senior (Chief Executive Officer) level management.

There were 345 completed forms returned in time for processing. A number of Australian educational institutions (members of the Asian Pacific Association for Agricultural Education), were also surveyed to determine their perceptions of the needs of agribusiness in Australia. Data from this latter survey will be reported in the future.

Respondents were asked to rate 74 attributes on a continuous scale of one to 10 (1 = little proficiency, 5 = some proficiency, 10 = high proficiency required). The scores were analysed using a SAS statistical package on a VAX mainframe computer at Curtin University of Technology.
Results

Ten types of agricultural business activities contributed most of the responses. These are shown in Table 1.

<table>
<thead>
<tr>
<th>Primary Type of Business</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Produce Marketing</td>
<td>12</td>
</tr>
<tr>
<td>Grain Processing</td>
<td>15</td>
</tr>
<tr>
<td>Farm Organisations</td>
<td>18</td>
</tr>
<tr>
<td>Agricultural Finance</td>
<td>42</td>
</tr>
<tr>
<td>Agricultural Co-operatives</td>
<td>17</td>
</tr>
<tr>
<td>Agr. &amp; Vet. Chemicals</td>
<td>73</td>
</tr>
<tr>
<td>Farm Machinery</td>
<td>30</td>
</tr>
<tr>
<td>Agricultural Consultant</td>
<td>54</td>
</tr>
<tr>
<td>Stock Firms</td>
<td>29</td>
</tr>
<tr>
<td>State Department of Agriculture</td>
<td>17</td>
</tr>
<tr>
<td>Other*</td>
<td>38</td>
</tr>
<tr>
<td>TOTAL</td>
<td>345</td>
</tr>
</tbody>
</table>

*includes categories with less than 10 respondents

The mean scores for each of the 74 attributes in the survey and the ranking of these attributes within six general categories, and in the survey overall, are shown in Table 2.
<table>
<thead>
<tr>
<th>Question Number</th>
<th>Description of Characteristic</th>
<th>Average Response</th>
<th>Overall Rank</th>
<th>Rank Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Business and Economic Skills</td>
<td>6.45</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 A 1</td>
<td>Read and use financial statements</td>
<td>6.74</td>
<td>30</td>
<td>7</td>
</tr>
<tr>
<td>2 A 2</td>
<td>Understand accounting concepts</td>
<td>6.20</td>
<td>40</td>
<td>13</td>
</tr>
<tr>
<td>3 A 3</td>
<td>Professional selling skills</td>
<td>6.35</td>
<td>37</td>
<td>10</td>
</tr>
<tr>
<td>4 A 4</td>
<td>Marketing administration</td>
<td>6.70</td>
<td>31</td>
<td>8</td>
</tr>
<tr>
<td>5 A 5</td>
<td>Corporate Finance</td>
<td>6.19</td>
<td>41</td>
<td>14</td>
</tr>
<tr>
<td>6 A 6</td>
<td>Human Resource Planning</td>
<td>6.62</td>
<td>32</td>
<td>9</td>
</tr>
<tr>
<td>7 A 7</td>
<td>Micro (Firm) economics</td>
<td>6.82</td>
<td>29</td>
<td>6</td>
</tr>
<tr>
<td>8 A 8</td>
<td>Macro (Australian) economics</td>
<td>6.24</td>
<td>39</td>
<td>12</td>
</tr>
<tr>
<td>9 A 9</td>
<td>International Economics</td>
<td>5.87</td>
<td>46</td>
<td>17</td>
</tr>
<tr>
<td>10 A10</td>
<td>Australian agricultural policy</td>
<td>6.29</td>
<td>38</td>
<td>11</td>
</tr>
<tr>
<td>11 A11</td>
<td>International trade</td>
<td>5.72</td>
<td>47</td>
<td>18</td>
</tr>
<tr>
<td>12 A12</td>
<td>National/International political effects</td>
<td>5.99</td>
<td>44</td>
<td>15</td>
</tr>
<tr>
<td>13 A13</td>
<td>Objectives/goals/identification</td>
<td>7.54</td>
<td>24</td>
<td>2</td>
</tr>
<tr>
<td>14 A14</td>
<td>Develop business policies/programs</td>
<td>7.01</td>
<td>27</td>
<td>4</td>
</tr>
<tr>
<td>15 A15</td>
<td>Key performance areas</td>
<td>7.56</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>16 A16</td>
<td>Co-ordinate human/physical resources</td>
<td>7.48</td>
<td>26</td>
<td>3</td>
</tr>
<tr>
<td>17 A17</td>
<td>Process &amp; product layout</td>
<td>5.68</td>
<td>48</td>
<td>19</td>
</tr>
<tr>
<td>18 A18</td>
<td>Inventory management systems</td>
<td>5.20</td>
<td>53</td>
<td>20</td>
</tr>
<tr>
<td>19 A19</td>
<td>Organisational structure</td>
<td>5.93</td>
<td>45</td>
<td>16</td>
</tr>
<tr>
<td>20 A20</td>
<td>Identify &amp; manage risk</td>
<td>6.99</td>
<td>28</td>
<td>5</td>
</tr>
</tbody>
</table>

B. Computer, Quantitative, and Management Information Skills | 5.19 | 4 |
| 21 B 1 | General business software | 6.59 | 33 | 1 |
| 22 B 2 | Computer accounting systems | 5.38 | 52 | 9 |
| 23 B 3 | Purchase & implement computer systems | 4.77 | 57 | 6 |
| 24 B 4 | Design programs/communicate with programmers | 4.11 | 67 | 9 |
| 25 B 5 | Write computer programs | 3.25 | 73 | 10 |
| 26 B 6 | Design/implement management information systems | 4.68 | 58 | 7 |
| 27 B 7 | Use computers in management decisions | 6.38 | 36 | 2 |
| 28 B 8 | Interpret/use maths/stats methods | 6.14 | 42 | 3 |
| 29 B 9 | Use quantitative techniques for decision making | 5.61 | 49 | 4 |
| 30 B10 | Understand artificial intelligence | 4.49 | 64 | 8 |

(continued on page 65)
TABLE 2 (continued)

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Description of Characteristic</th>
<th>Average Response</th>
<th>Overall Rank</th>
<th>Rank in Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. 31 C 1</td>
<td>Livestock production systems</td>
<td>6.39</td>
<td>35</td>
<td>2</td>
</tr>
<tr>
<td>C. 32 C 2</td>
<td>Crop production systems</td>
<td>6.41</td>
<td>34</td>
<td>1</td>
</tr>
<tr>
<td>C. 33 C 3</td>
<td>Specialised crop production systems</td>
<td>4.99</td>
<td>55</td>
<td>3</td>
</tr>
<tr>
<td>C. 34 C 4</td>
<td>Soil chemistry and characteristics</td>
<td>4.50</td>
<td>63</td>
<td>6</td>
</tr>
<tr>
<td>C. 35 C 5</td>
<td>Biosciences/Biotechnology/</td>
<td>4.58</td>
<td>60</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Biochemistry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. 36 C 6</td>
<td>Food science/processing technology</td>
<td>4.04</td>
<td>68</td>
<td>8</td>
</tr>
<tr>
<td>C. 37 C 7</td>
<td>Food transportation/distribution</td>
<td>4.52</td>
<td>62</td>
<td>5</td>
</tr>
<tr>
<td>C. 38 C 8</td>
<td>Engineering technology</td>
<td>4.31</td>
<td>66</td>
<td>7</td>
</tr>
<tr>
<td>C. 39 C 9</td>
<td>Computer controlled processes</td>
<td>3.81</td>
<td>71</td>
<td>9</td>
</tr>
<tr>
<td>D. 40 D 1</td>
<td>Write technical reports</td>
<td>8.09</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>D. 41 D 2</td>
<td>Speak clearly/concisely on</td>
<td>8.10</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>technical information</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. 42 D 3</td>
<td>Give clear/concise instructions</td>
<td>8.46</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>D. 43 D 4</td>
<td>Express creative ideas in writing</td>
<td>8.11</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>D. 44 D 5</td>
<td>Express creative ideas verbally</td>
<td>8.24</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>D. 45 D 6</td>
<td>Read specific technical information</td>
<td>7.92</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>D. 46 D 7</td>
<td>Listen/carry out instructions</td>
<td>8.63</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>D. 47 D 8</td>
<td>Listen/summarise oral</td>
<td>7.77</td>
<td>22</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>presentations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. 48 D 9</td>
<td>Professional telephone skills</td>
<td>8.43</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>E. 49 E 1</td>
<td>Provide leadership</td>
<td>8.12</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>E. 50 E 2</td>
<td>Delegate authority/responsibility</td>
<td>8.08</td>
<td>18</td>
<td>11</td>
</tr>
<tr>
<td>E. 51 E 3</td>
<td>Work with others/team skills</td>
<td>8.70</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>E. 52 E 4</td>
<td>Positive work attitude</td>
<td>9.16</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>E. 53 E 5</td>
<td>Self-motivation</td>
<td>9.22</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>E. 54 E 6</td>
<td>Self-confidence</td>
<td>8.65</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>E. 55 E 7</td>
<td>High moral/ethical standards</td>
<td>8.81</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>E. 56 E 8</td>
<td>Work under varied conditions</td>
<td>8.62</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>E. 57 E 9</td>
<td>Recognise business opportunity</td>
<td>8.03</td>
<td>19</td>
<td>12</td>
</tr>
<tr>
<td>E. 58 E10</td>
<td>Select/supervise employees</td>
<td>7.49</td>
<td>25</td>
<td>14</td>
</tr>
<tr>
<td>E. 59 E11</td>
<td>Apply technical skills</td>
<td>7.87</td>
<td>21</td>
<td>13</td>
</tr>
<tr>
<td>E. 60 E12</td>
<td>Take &amp; defend a position</td>
<td>8.11</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>E. 61 E13</td>
<td>Work without supervision</td>
<td>8.99</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>E. 62 E14</td>
<td>Raise capital for new/ongoing ventures</td>
<td>5.54</td>
<td>50</td>
<td>15</td>
</tr>
<tr>
<td>E. 63 E15</td>
<td>Loyalty to organisation</td>
<td>8.73</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

(continued on page 66)
Table 2 (continued)

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Description of Characteristic</th>
<th>Average Response</th>
<th>Overall Rank</th>
<th>Rank in Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>F 64 F 1</td>
<td>Farm/station work</td>
<td>4.64</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>F 65 F 2</td>
<td>Domestic agribusiness firm</td>
<td>4.52</td>
<td>61</td>
<td>6</td>
</tr>
<tr>
<td>F 66 F 3</td>
<td>Financial institutions</td>
<td>5.46</td>
<td>51</td>
<td>2</td>
</tr>
<tr>
<td>F 67 F 4</td>
<td>Non-agricultural retail firm</td>
<td>4.44</td>
<td>65</td>
<td>7</td>
</tr>
<tr>
<td>F 68 F 5</td>
<td>International agribusiness firm</td>
<td>3.45</td>
<td>72</td>
<td>10</td>
</tr>
<tr>
<td>F 69 F 6</td>
<td>Government/public affairs</td>
<td>4.77</td>
<td>56</td>
<td>4</td>
</tr>
<tr>
<td>F 70 F 7</td>
<td>Industry internships</td>
<td>3.95</td>
<td>69</td>
<td>8</td>
</tr>
<tr>
<td>F 71 F 8</td>
<td>Student teaching assistant/ part-time university work</td>
<td>4.60</td>
<td>59</td>
<td>5</td>
</tr>
<tr>
<td>F 72 F 9</td>
<td>Developing business plan</td>
<td>3.24</td>
<td>74</td>
<td>11</td>
</tr>
<tr>
<td>F 73 F 10</td>
<td>Extracurricular activities</td>
<td>6.13</td>
<td>43</td>
<td>1</td>
</tr>
<tr>
<td>F 74 F 11</td>
<td>General education - humanities</td>
<td>5.16</td>
<td>54</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 3 shows the average response for the six major categories sorted by industry type and level of employee. It can be seen that there is a remarkable similarity across industries in terms of the mean scores and ranking of categories of attributes with the only divergence being in terms of the rank order of importance of quantitative, technical, and previous work experience attributes. In all cases, interpersonal and communication skills were ranked either first or second, and with relatively high scores in terms of required proficiency.

Business and economics skills were ranked third in all but one case, at a level indicating some proficiency was required. The only exception was for entry level employees where technical skills were ranked higher than business and economic skills. Among industry groups, only farm organisations and agricultural/veterinary chemical companies, and to a lesser extent grain processing companies, rated technical skills as requiring some proficiency. The results of statistical analysis of the differences in various categories of attributes between industries are shown in Table 4.

In terms of level of employee, there were no differences between categories of attributes associated with computing skills, technical skills, and previous work experience. However, there were significant differences at the .05 level in the requirement for business and economics skills (Junior level v Middle level, and Junior level v CEO level), and for interpersonal skills (Junior level v CEO level). There was a difference at the .10 level for communication skills between Junior level and CEO level.
TABLE 3

Average response by Major Category of Characteristics for Agribusiness Managers, by Industry, and Level of Employee

<table>
<thead>
<tr>
<th>Major Skill Category</th>
<th>Business</th>
<th>Computer</th>
<th>Technical</th>
<th>Communication</th>
<th>Personal</th>
<th>Work</th>
<th>Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ave</td>
<td>Rank</td>
<td>Ave</td>
<td>Rank</td>
<td>Ave</td>
<td>Rank</td>
<td>Ave</td>
</tr>
<tr>
<td>All Industry</td>
<td>6.45</td>
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Level of employee

Upper                                      | 7.85 | 3    | 5.28 | 4    | 4.85 | 5    | 8.62 | 2    | 8.96 | 1    | 4.74 | 6    |
Middle                                     | 6.85 | 3    | 5.60 | 4    | 5.07 | 5    | 8.51 | 1    | 8.47 | 2    | 4.61 | 6    |
Entry                                      | 4.53 | 4    | 4.46 | 5    | 4.56 | 3    | 7.41 | 1    | 7.31 | 2    | 4.12 | 6    |
TABLE 4

Level of significant differences in the mean scores of six categories of attributes between industries

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* n.a. = not applicable

Discussion

The data acquired in this study is quite similar to that obtained in the US study reported by Litzenberg and Schneider (1988). Interpersonal and communication skills were rated highest by all employer groups across the three levels of employment. Business and economic skills were rated a little less important, but higher, in all employer categories, than quantitative or technical skills, or previous work experience.

In terms of employment level, technical skills assumed greater importance only for junior or entry level employees, but there is no statistical difference between the two relevant scores (4.56 v 4.53).

Australian and US agribusiness managers agree on the importance of the key interpersonal skills - self-motivation, positive work attitudes, working without supervision, high moral/ethical standards, team skills, self-confidence, and loyalty to the firm. There is also agreement on the key communication skills - listening, and giving clear instructions, and on the key business and economics skills - setting objectives, identifying key performance areas, co-ordinating human and physical resources, and developing business policies and programs.
The second aim of this study was to look for information of assistance to educational institutions in reviewing their courses. The analysis of the data shows that the various sectors of agribusiness have differing needs. Perhaps institutions should identify which sectors of agribusiness they intend to target and consider how they can provide the emphases sought by the future employers of their graduates. The results indicate that it will be hard to "be all things to all people".

It is expected that the short term employment outcome for new graduates will be at the junior and middle level of management. While communication and interpersonal skills are ranked first or second for all industry groups and across employment levels, these attributes and those from the business and economic skills area become more important as the level of employee becomes more senior.

This would seem to indicate an opportunity for institutions to further develop these skills in executive development programs, or in graduate programs such as the MBA. However it is our contention that the undergraduate curriculum should be constructed to ensure that new graduates are in possession of good interpersonal and communication skills too. Survey data from alumni of the University of New South Wales suggests that they would strongly support this view (Midgley and Petty 1983).

Our data, and those obtained by Litzenberg and Schneider (1988), cause us to ask whether such attributes as self motivation, positive work attitude, high moral and ethical standards, teamwork and listening skills could or should be learnt in the undergraduate environment of a tertiary institution, and form part of the formal curriculum. If the answer is 'no', then one assumes that the least one should do is to inform students that some employers may be looking for these attributes in their future employees, and let the students work out what to do with this information. However, what if the answer is 'yes'. Some people at this point may then ask, "is it the business of a tertiary institution to seek to form attitudes within its students?"

Fisher and Levene (1986) have reviewed this issue in the context of the medical curriculum at the University of Calgary in Canada. Some of their colleagues believe that either attitudes are already formed by the time a student enters tertiary education, or although it might be possible to teach new attitudes, it is not a legitimate activity and borders dangerously on thought control. However they conclude that teaching of attitudes is both possible and legitimate, and that "the curriculum must include objectives and learning experiences designed to elicit those kinds of behaviour which suggest to the majority of patients and colleagues that physicians have positive attitudes towards them." They further argue that one cannot avoid teaching attitudes, either positive or negative, because of the close involvement of staff and students, particularly in the senior years.
Students do pattern their own behaviour in either imitation or denial of what they see. Thus teaching staff should use the role model they present to students sensitively, controlling their own behaviour and rewarding students who show the appropriate behaviours. Students should also be made aware of how they can be influenced by their role models, and that they in turn may be role models for other students now, and for other managers in their future workplace.

A similar argument can be made concerning ethical behaviour, and used to reinforce the proposition that deliberate but informal teaching is the preferred approach to assisting students acquire these key interpersonal skills.

Hahn (1986) states that it is impossible to separate higher education and ethics. "When a college properly does its job in promoting learning, the inculcation of ethics should follow. Once a student's intellect has been so trained, he or she is confident enough to make ethical decisions with far more certainty; intellectual judgements elucidate moral choices; and conscience acts best, as its root scientia suggests, with knowledge."

The proposition being made in this paper is that one starting point for examination of the curricula is to determine the needs of the employers of our graduates. The process then continues with the incorporation of objectives in the curricula that aim to meet these needs, and then the design of learning experiences that can help the students meet these objectives.

**Formal versus informal learning**

We have proposed that self motivation, positive work attitude, and high moral and ethical standards can be inculcated in students by informal means. For this process to be successful however, the faculty team must be prepared to embrace these concepts within their own corporate behaviour.

In other words, students must be able to see and positively identify these same attributes in their role models, in all the courses, subjects or units in which they enrol. This will be a far more effective learning system for students than adding a course of ethics that must compete for time and attention with 40 others (Hahn 1986), but it also represents an immense challenge for the faculty Dean as leader of the team, to bring the team to the point where each member accepts a level of responsibility for helping students to acquire these highly desirable attributes.

Developing positive moral and ethical attitudes, team work skills and listening skills, can also be formally incorporated within existing curricula.
Case studies which highlight difficult ethical issues and choices will assist students to make better decisions in the workplace, but these discussions are better held throughout the curricula; even the Harvard Business School questions the real value of formal courses in business ethics (Shames 1986).

To develop team skills, students can be deliberately placed on teams of four or five for case studies or other project work and, as part of the teaching plan, formally evaluate their contribution and that of each of the other team members on every occasion. Basic listening skills can be enhanced by requiring students to recall oral instructions and by using written instructions less frequently.

One approach being developed at the Muresk Institute of Agriculture to enhance higher level listening skills, is to require one or two students to summarise orally the key aspects of a farming industry visit before the visit is completed.

The same approach, of incorporating learning opportunities within existing curricula, can be taken for many of the other important communication and interpersonal skills. The data in this study show that business and economic attributes were highly rated by all sectors of agribusiness in the survey.

Incorporation of more of these skills within existing curricula, or making a case for additional formal courses subjects or units would be an easier task for those institutions who see their graduates as being aligned to the needs of the firms surveyed.

Based on the survey data, it would seem that if any area of the curricula might have to be reduced to do this, it is in the area of technical or production-oriented agriculture. The rate of change in this area in terms of technical information has been so rapid in recent years that one must question the desirability of requiring students to recall information that may in fact be redundant, or worse illegal, by the time they graduate.

In other words, there may be some curricula space available for revamped courses or new courses that is currently occupied with the transmission of facts which have a very short half-life of usefulness. The learning of positive work attitudes, self motivation and high moral and ethical standards may better stand the test of time.

**Conclusion**

University and college courses in communications should involve more than assisting students to acquire better written and oral skills.
Tertiary educators need to find ways of assisting their students to acquire key interpersonal, communication, and business and economic skills so that they can compete successfully for managerial positions in government and industry, at even a relatively junior level.

Even when the faculty team becomes convinced of the desirability of having their students develop these skills, it is unlikely that much room could be found within existing curricula for new courses in communications and interpersonal skills training, or even in business and economics. However, the acquisition of interpersonal and communication skills may be done more effectively in informal settings within existing curricula.

Thus it is suggested that there are other ways to accomplish this, viz through teaching staff acting as role-models, and using workshop and case study techniques in existing courses to emphasise and reinforce these key attributes.

Acknowledgements

The authors wish to thank the participating Australian agribusiness firms for their support for the AGRI-MASS survey, and to Dr KK Litzenberg for his approval to use the survey instrument.

References


Litzenberg, KK, Gorman, WD, and Schneider, VE (1983) "Academic and Professional Programs in Agribusiness". American Journal of Agricultural Economics 65:5

Litzenberg, KK and Schneider, VE (1988) "Educational Priorities for Tomorrow’s Agribusiness Leaders". Agribusiness 4:167


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Figure 10.2 (a) Importance of knowledge, skills and attitudes in relation to industry.

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MEMO TO ALL STAFF

FROM INTA

I enclose a report of the proceedings at last Thursday's reaccreditation meeting.
I emphasise that this report is not an official one, however, the summary represents the Faculty's perceptions of the discussions and proceedings which took place, and of the recommendations which are likely to be reflected in the final report of the Committee, and should provide valuable feedback in the short term.
Summary of Key Issues of Concern:

* At a time when sustainability is high on the national agenda, the fall in enrolments is cause for concern.
* Subjectivity in assessment.
* Phase aims are substantial and reasonable, but is the achievement of these aims assessed? Are there guidelines for students and staff?
* How is the assessment process regarded by employers?
* Non-ranking of graduates incompatible with excellence.

> Lack of adequate technical base.
* Problem with 3 streams nominated - students with specific career goals may wish to work within more than one stream.
* Current need for course needs to be proven - references cited are external to Australia.
* Evidence from Outreach (farmers) suggests that some students have difficulty in adapting to change in learning styles between traditional and HAC approach.
* Given the difference of the systems approach - how much counselling is directed at school leavers and school counsellors to prepare incoming students?
* What emphasis is placed on computing skills development?
* Associate Diploma - very low enrolments combined with low % graduating.
* Is the systems approach appropriate to Associate Diploma - can students cope with deep ending?
* Common first year of Degree and Associate Diploma - what strategies are used to cope with wide range of abilities and expectations?
* Aims of Honours program and its relationship to Masters and GDSA unclear.
* Difficult to distinguish between content of the Honours and GDSA courses in the document.
* Honours enrolments - how many students will be available to enrol?

Summary of Commendable Features:

* Systems approach is recognised as a means of dealing with increasing complexity - enabling students to use limited resources to improve situations.
* Course provides a means of bridging the gap between the traditional base of farmers and the new technology with which they have to cope.
* The course fosters independence of learning and self-confidence.
* Philosophy best suited to 'good' students, who are likely to excel.
The program achieves high level skills in communication and problem solving.

- an effective holistic approach
- commend the consolidation of the Associate Diploma into one stream
- focus on increasing student self-direction as the course progresses
- direct approach to clients and community - students working on real farm problems
- enormous potential of the course to assist in achieving long-term sustainable agriculture
- quality of graduates does the College proud
- employability of graduates very high
- takes much application to succeed in the course and this must lead to a new generation of environmentally aware young farmers
- commend articulation, especially between the Degree and the Associate Diploma

Group Reports and Recommendations

Associate Diploma

Considerable concern expressed over future of the program

- may fold in the very near future due to lack of enrolments
- perception by employers and industry groups that it is not providing the technical base required
- articulation is a good idea, but the emphasis should be on the program in its own right
- plentiful demand for Graduates, but the Faculty/College is failing to capitalise on this
- needs massive promotion from now until the end of the year
- needs specific skills areas which can be identified
- ongoing negotiation with TAFE re a joint offering should continue

Strongly recommend the establishment of advisory committees to deal with specific and immediate issues - e.g., feedback from employers, and should include marketing people to assist in selling the course to schools via careers counsellors.

Degree

- Overall, seen as a worthwhile and unique program

Recommendations:
1. Include an explicit statement of the aim of each phase of the course - in layman’s terms (no jargon).
2. Include more explicit statement of expectations and criteria for assessment - where possible in terms of student projects. Students’ project
proposals should have explicit links with phase aims.

3. Provide for a detailed testamur listing competencies graduates have achieved - this will, inter alia, assist the articulation of HAC graduates into other programs, as well as recognising excellence and achievement. This last recommendation to apply to all programs offered by the

Current name of the degree should be kept but suggest be subject to honest promotion which emphasises how from other Bachelor or Applied Science programs being nationally.

Post Graduate Programs

* Clarify the relationship between Honours, GDSA, and Masters and include explicit statement of nature of outcomes expected in each case and how they relate to each other.
* Presume that there is a shift along the continuum from action learning to action research represented in the above relationships, but need clearer, more explicit statements - (no jargon). Suggest that someone external to the Faculty lend an editorial hand.
* Serious question about the competence of many of the existing staff to offer p/g programs - should therefore seek to expand these programs only slowly to avoid stretching staff resources.
* Should concentrate on expanding research base again without stretching scarce staff resources.

A final comment re facilitation - the Faculty should seek to ensure adequate training and encouragement be given in this area which is seen as a specific area to be developed.
Memo to: Judyth McLeod
From: Fiona Childs
Date: November 18, 1987

Dear Judyth,

In a brief form, detailed below are the methods the Publicity/Information Unit uses to market the College.

The Publicity Units four main intentions are to:

1. Attract potential students to our courses.
2. Promote the College's as a valuable community resources to industry, professional bodies and other groups.
3. Improve the College's corporate identity with its publics.
4. Raise general community awareness of the College and its activities.

How we currently seek to achieve these intentions is by using an integrated marketing communication mix:

[Diagram showing Advertising, Sales Promotions, P.R., Personal Selling]
My definitions for use and brief explanations on marketing efforts are:

**Advertising:**
"Paid communication used to inform or persuade publics". Advertising is cost effective when used to create awareness and expand comprehension of a product. It is used by the College as institutional advertising - as a long-term build up of the College's name - and as an information disseminator - displaying information on special events such as Open Day; in career education supplements to describe College courses.

**Personal selling:**
"An immediate and interactive relationship between two or more persons". It is assumed that those contacted are already aware of the College. Therefore it is used to improve comprehension of the college's activities. The College uses personal selling to induce further involvement with College. Such activities include: advising students at career markets, speaking to career guidance teachers, representing the College at industry functions, speaking to service clubs and students at high schools, and giving conducted tours of the campus to high school groups. Career guidance teachers often personally sell courses at Hawkesbury to their students, acting as College information brokers.
Public Relations:

"A two-way communication process between an organisation and its publics to encourage good relations."

Effective public relations requires structured communication programs aimed at identified target groups.

Monitoring public opinion and maintaining effective public relations with organised publics are the main roles of p.r.

Its success depends on identifying issues which could develop and affect the future success or failure of an organisation. It is often used to highlight opportunities for growth and better relations with an organisation's publics.

Several public relations activities this year involved government agencies, the media and educators: visits by the Federal Government's Rural Task Force; the Canadian Consular General, the Pro Vice-Chancellor of University of Sydney, the Higher Education Supplement for the Australian newspaper.

P.R. is often not assumed as a viable and effective method of marketing as results are often intangible and unquantifiable.

Promotions:

"Activities other than publicity, advertising and personal selling used to encourage publics interest and action."
There are two forms of promotions used by the College:

a) Promotional literature and videos; these include fact folios, career guides, brochures and posters on individual courses and events; videos on individual courses.

b) Promotional events. These activities are used as product differentiators. The most regular activities are industry field days and career markets.

Publicity:
“Information from the College used by the news media based on its news value.”

Would you please note that Publicity activities are one part of the Public Relations efforts.

Publicity is cost effective when used to create awareness and comprehension. It is used to attract attention to and impart knowledge on positive actions taken by the College.
These are activities which the Publicity/Information Unit undertakes to market the College:

* Produce fact sheets and career guides.
* Produce video programs on courses.
* Organise career advisor visits to Hawkesbury.
* Attend career markets.
* Organise campus tours for high school students.
* Advertise and publicize Open Day.
* Organise course information for Open Day.
* Mail out college information to over 700 N.S.W. high schools.
* Advertise and publicize H.A.C. in career supplements in the rural, local and metropolitan press.
* Publicize graduate/industry functions.
* Edit and distribute a tri-annual newsletter for College publics.
* Publicize special activities in the general and trade press.
* Co-ordinate visits to the College by interested groups and individuals.
* Publicize Hawkesbury Agricultural College activities to keep the local and general community informed.
* Participate in community-generated activities: Hawkesbury Show, Macquarie Towns Festival, industry and field days.
* Co-ordinate a weekly staff news sheet.
* Liaise with students on the production of their weekly newspaper, Jumbunna.
At a later time please let me know if the marketing group wishes more detailed information on these individuals' activities.

I hope the meeting goes well.

Kindest regards.

Fiona Childs.
28th August, 1992

Mr Wally Potts
Lecturer
Horticulture
UWS - Hawkesbury
RICHMOND 2753

Media/PR Campaign:

Dear Mr Potts,

Please find enclosed our broad proposal for developing the profile and public awareness of the faculty.

We will be pleased to discuss strategies and budgets with you in more detail, to ensure the most cost-effective results are achieved.

Yours sincerely,

Brian Morris,
Manager, PR Consultancy.
PROPOSAL:

Media/PR Campaign: UWS - Horticulture:

1.0 Background:

One the basis of the telephone conversation between UWS’s Wally Potts and TJA’s Brian Morris, this broad proposal is submitted for consideration.

The Journalists Agency was established in 1989 and specialises exclusively in providing professional communicators, on assignment, to the public and private sectors.

With a current talent pool of 1,156, TJA covers every communications sphere -- media/PR consultants, technical and specialist writers, journalists and 'creatives'. Background information is attached.

2.0 Broad Strategy:

It is understood that the UWS faculty of Horticulture plans to raise its profile through publicity and media editorial.

An information and awareness campaign will be targeted through appropriate media, to three primary demographic groups:

- school leavers
- employers
- government

The 'pitch' and 'angle' of various media releases, features and electronic media interviews/stories will be adjusted for each demographic and the target media outlets.

More formal strategies will be presented following a full briefing session with the faculty. However, a series of articles will be written which focus on issues of principal concern and interest to the demographic groups. The copy will then be pitched to media outlets, which will include:

1. Mainstream metropolitan press
2. Local Media
3. Trade and special press (appropriate to each demographic)
4. National magazines
5. Regional and rural media
6. Electronic media
3.0 Costings

Clearly, without a full briefing and knowledge of proposed budgets, costings at this stage can only be generalised.

To generate and sustain a profile-raising and awareness campaign through all the media groups above requires several elements - research, writing, strategic planning, media targeting and follow-up (with editors and producers to maximise the media strike-rate).

**Minimum - for cost-effectiveness**

**Initial Campaign**

Media/PR Consultant: 10 days @ $400 $4000

**On-going (monthly)**

Media/PR Consultant: 4 days @ $400 $1600 (month)

Additional hours or days can well be added to capitalise on various stories which started to 'run' particularly well. New pitches and angles can be developed to keep a good story alive and maximise media exposure for UWS.

4.0 Summary

This form of editorial publicity is far more effective and vastly cheaper than a 'paid advertising' campaign. Media editorial has a readability and 'credibility' factor of 7:1 over straight-advertising. Naturally, it also allows for much more information to be projected to any particular demographic group.

The resources of TJA provides for a media/PR specialist, with a clear understanding of faculty objectives, to be assigned. An initial meeting will be arranged to confirm briefing details and client/consultant rapport.

Once initiated, the consultant will take full responsibility for implementing and successfully completing the campaign, with TJA taking the overview and administrative role.

Brian Morris
Manager, PR Consultancy
27 August 1992
Faculty Publicity

Marketing has a brief from the faculty (1988) to co-ordinate P.R. and were able to gain access to about $6,000 in the total College

Only this year I have met with Jenny Orr, College P.R in relation for this faculty's specific allocation.

Broadly the purpose of advertising the faculty is to:-

1. Attract suitable numbers and quality of students into all our programmes.
2. Make potential employers aware of the training and quality of our graduates.
3. Attract support from industry for research and or other grants.
4. Reduce the inter faculty conflict and aggression by better articulating our position.

I believe that 1 & 4 are immediate priorities but accept that 2 & 3 are also essential but that these can continue as at present without major detrimental repercussions.

A faculty brochure (none currently exist), new course information brochures and contribution to a college newsletter for wide outside circulation (2 - 4 times/year) to our own network, together with more involvement in career markets are some of the approaches suggested in relation to number 1 above.

A faculty profile in our local campus info perhaps followed up by seminars and or discussion groups to increase the level of understanding and interaction between faculties is mooted for number 4 above. Obviously it is an essential prerequisite of this action that the "faculty" wants to improve its relationships at all levels throughout the campus. At this point in time I have no confidence that this is the case and am therefore not prepared to take this further.

A faculty brochure needs to clearly identify the areas or themes in which we are excellent. The thrust being that if you, as a prospective student or later a perspective employer, are interested in certain career areas Hawkesbury is the place to come to study or recruit.

I believe we need to identify these areas and essentially organise identifiable task forces around them and hence our teaching/learning programme is focussed.
These areas could be:

1. Farm management and production agriculture.
2. Education (teaching).
3. Rural development and extension.
4. Agri business and marketing.

If we take this approach we would need to be confident that we can measure up in the employment arena. That means in my opinion groups of staff being identified as key persons in each area to be our front line contact with the industry/professions to be prime movers in programme development and delivery in that area.

Obviously I have glossed over what is a complex issue, however my main purpose is to achieve awareness amongst faculty and promote discussion and hopefully some commitment to act.

Attached are some interesting data from Jenny Orr in relation to area of student draw and also details of career market timetable for 1989.

I welcome your attendance and discussion at the next faculty meeting Thursday 9th. Jenny Orr will attend.

DON LUNDIE-JENKINS.

3/3/89
SELLING THE FACULTY

Do you wish our graduates to be sought after in the employment field?

Do you wish our student quota's to be filled with well qualified motivated students?

I hope your answer to these two questions is yes, if not we are in lots of trouble.

At the last faculty meeting there appeared general agreement and the desire to do something about the current situation. Selling the faculty cannot be achieved by a P.R person or group alone, the entire faculty needs to be active and aware of opportunities.

There are many ways people at all levels can play an important role.

Firstly by advising outreach of all interesting events, people, projects etc that you as an individual may be involved with. This advice can vary from a brief note to say an important visitor is coming (we will arrange photographs and interviews) to a detailed press release or feature article (we will arrange suitable distribution and publication). There are many avenues for publication from the internal info to U.W.S Hawkesbury newsletter to local, country or national press. As long as we get the main ideas from you we can rewrite and or organise the material to suit whatever is the appropriate outlet.

Secondly there are needs for staff to be active at career markets, field days, shows etc where we have exhibits etc.

My request to you is:-

a) That every academic provide at least 1 news article, interview per year and that all staff of the faculty be encouraged to contribute material. Outreach will organise primary editorial work, arrange photographs etc and co-ordinate publication in appropriate outlets through the college P.R. section.

b) That every academic attend at least 1 function per year either as arranged by college or faculty or take initiative in their own field to talk at functions, conferences etc. Outreach will circulate a list of functions/articles for 89. Where you organise something yourself outside this system please advise us beforehand (we may be able to provide support material) and give us your evaluation after.

An emphasis of college P.R at present is to promote the corporate image of U.W.S. which I believe is necessary if we are to truly become U.W.S. This may in the short term throw more responsibility to us as a faculty to sell ourselves.
Some things have been achieved. With tremendous effort from Robyn Sledge we have new standardised U.W.S course information leaflets and a new faculty leaflet is under design.

Elwin Turnbull attended a career night at Knox Grammar School supported by 2 students.

Graham Bird has volunteered to co-ordinate our Open Day activities.

I look forward to your assistance in selling this unique faculty to the widest possible audience.

DON LUNDIE-JENKINS,
OUTREACH.

23/3/89

Your first opportunity to assist is at the Hawkesbury Show where the Faculty will participate in a college exhibit. We need 7 staff and 7 students over the 3 day period. Each pair (1 staff, 1 student) to attend for a 3 hour period (they will be provided with gate passes).

Please indicate if you are available on the table below and return to me urgently.

AVAILABILITY ✓

Friday 7th April 12.00 noon to 3 pm 3 pm to 6.00 pm
Saturday 8th April 9.00 am to 12.00 noon 12.00 noon to 3.00 pm 3.00 pm to 6.00 pm
Sunday 9th April 9.00 am to 12.30 pm 12.30 pm to 4.00 pm

NAME: ________________________________
REFERENCES

8. Carrel, A. (1948), Man, the Unknown, Pelican, West Drayton, p.46.
13. Carrel, loc. sit., p.239.
15. Course Review for Bachelor of Applied Science (Systems Agriculture), Faculty of Agriculture, UWS-Hawkesbury, June 1989.
17. Checkland & Scholes, loc. sit., p.4.
19. Wilson, loc. sit., p.66
23. Mukhi, loc. sit., pp.53-5
26. Mukhi, loc. sit., p.54
27. Mukhi, loc. sit., p.102
28. Mukhi, loc. sit., p.7
29. Mukhi, loc. sit., p.6
34. Hodgetts & Luthans, loc. sit., pp.178-179
35. Wilson, loc. sit., p.2
36. Ferguson, loc. sit., p.378
37. Checkland & Scholes, loc. sit., pp.50-51
38. Checkland & Scholes, loc. sit., pp.48-50
42. Dunphy, loc. sit., pp.230-235
44. ibid., p.114.
45. ibid., p.116.
51. Mukhi, loc. sit., p.52.
55. Bawden, R., June Council Meeting Report, Hawkesbury Agricultural College Council, Meeting of June 24, 1988, Item 8.2
58. Bateman & Zeithaml, loc. sit., pp.65-67
59. Mukhi, S., loc. sit., p.508
64. Bateman & Zeithaml, loc. sit., pp.485-488
71. Lees, loc. sit., pp.1-3
73. Proposal for a New Course of Study: Bachelor of Agribusiness, VCAH and Chisholm Institute of Technology, 12 July 1988, p.11
76. Lees, loc. sit., p.26
78. Course Review for Bachelor of Applied Science (Systems Agriculture), Faculty of Agriculture, UWS-Hawkesbury, June 1989, p.29
79. Review/Assessment Reports (Courses Reviewed/Assessed Since 1st January, 1989), Academic Secretariat Section, UWS-Hawkesbury.
80. Course Review for Bachelor of Applied Science (Systems Agriculture), Faculty of Agriculture, UWS-Hawkesbury, June 1989, p.26
81. ibid, Annexure 2, Feedback from Graduates, Table 5, p.5
82. Bawden, R., June Council Meeting Report, Hawkesbury Agricultural College Council, Meeting of June 24, 1988, Item 8.2
83. Cardwell, V.B. (1987), A trip/study leave report: Visit to HAC, Richmond, NSW, Australia, 21/1 to 14/3/1987, pp.11 & 22
84. Applegate, J., Somewhere In Between, Reflections on the Hawkesbury Experience, Report to the Faculty of Agriculture, August 1988
86. McDonald, B., (1989), Reflections of (sic) the Faculty Marketing Project, Internal Document, Faculty of Agriculture, UWS-H, pp.25-26
90. Carrel, A. (1948), Man, the Unknown, Pelican, West Drayton, U.K., p.55
91. McDonald, loc. sit., p.23
92. Cardwell, loc. sit., pp.16-18
96. Bateman & Zeithaml, loc. sit., p.256
97. West, W., Education fails to come up to the mark, say Employers, The Australian, Supplement No.482, 2/8/1989
104. ibid., p.32
105. ibid., p.29
106. Australia's Workforce in the Year 2001, June 1991, DEET, Canberra, Table 2.3, p.17
107. ibid., Table 3.1, p.22
108. ibid., Table A1.1, p.114
110. Potts, W., An Open Letter To The Faculty Forward Planning Committee, Internal Document, Faculty of Agriculture, 8/11/88
111. DEET report, June 1991, loc. sit., Table A1.1, pp.114-117
116. *Notes on Faculty Advisory Committee Meeting-17/3/1987*, Faculty of Agriculture, Hawkesbury Agricultural College, pp.3-5
117. Lundie-Jenkins, D., *Faculty Publicity*, Memo to all staff, Faculty of Agriculture, UWS-H, 3/3/1989
122. Clarke, loc. sit., p.20
123. ibid.
124. Osipow, loc. sit., pp.9-11
125. Clarke, loc. sit., p.14
126. ibid., p.15
128. ibid., Vol.2, Appendix VI, Rank Order Tables, pp.315-327
129. ibid., Vol.1, pp.112-113
130. Personal communication, J. Stewart-Rattray, JAC Project, DIRETFE, October, 1992
132. ibid., p.41
135. *Course Review for Bachelor of Applied Science (Systems Agriculture)*, Faculty of Agriculture, UWS-Hawkesbury, June 1989, p.26
136. Wilson, loc. sit., p.87
138. Wilson, loc. sit., pp.86-7
A SYSTEMS ANALYSIS UNDERTAKEN TO IMPROVE EMPLOYER AWARENESS OF AND CAREER OPPORTUNITIES FOR HAWKESBURY AGRICULTURISTS.

W. H. C. POTTS

MASTER OF SCIENCE (HONOURS) CANDIDATE

1993

UNIVERSITY OF WESTERN SYDNEY - HAWKESBURY
PLEASE NOTE

The greatest amount of care has been taken while scanning this thesis,

and the best possible result has been obtained.
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To: R. Bawden, D. Lundie-Jenkins, R. Macadam  
From: W. Potts  
Re: Report on the Inquiry into Marketing the Faculty Outputs  
Date: 13th June, 1993

Though I have since spoken with each of you individually, we have not met as an ART since my dispatch to you on 20/1/1990 of the draft marketing plan and our telephone conference-link of 9/3/1990 to discuss that document. Since that time, I undertook the additional research (that went to studies in how school-leavers make career choices), and integrated those findings with the earlier data. This is reported in Section 2 of the attached document.

The additional research had a significant effect on the draft marketing plan in emphasis, but not in its general direction. You will notice that the overall thrust of the final marketing plan (Section 3 of the attached), though handled somewhat differently in implementation, is not essentially different from the draft.

With the transmission to you of this, the complete report and recommendations, the final phase of debate about the implementation of desirable and feasible change is engaged. And I would be grateful if, after you, have had the time to review the document, we could arrange to meet again as an ART to discuss the issues arising therefrom.

I think it appropriate to advise that, since my return to UWS-Hawkesbury (late 1991), and my appointment as the representative of the (now) School of Horticulture to the University PR Committee, I have undertaken to devise, debate, and implement desirable and feasible change in that School's promotional programme. Though the root-issues (messages) are dissimilar, the essential marketing thrust, in its direction towards, and education of, the same defined publics, is quite similar to the outcomes of the study here reported.

Attached you will find the draft of an article that will be printed in UWS-Hawkesbury's campus journal -Info. The essential promotional messages have already been trialled. The focus on the link between undergraduate course study direction and careers was the centre-piece of the presentation on Careers Advisers' Day (May 11, 1993). The aspects of both under- and post-graduate education plus outreaching to industry was the focus of the School's display at the 4th Australian Horticultural Industries Exhibition (May 12 & 13, 1993).

Thus, debate and, to an extent, implementation of desirable and feasible changes has begun in the School of Horticulture. And the change is in a promotional direction that, for reasons outlined in the attached report, is likewise recommended to the (now) School of Agriculture for its earnest consideration.

I do most eagerly look forward to discussing these matters with you in an ART context in the near future. And I will call each of you in that regard in around four weeks time.

Yours sincerely,

Walter H.C. Potts
The School of Horticulture adopted as its mission in 1989 "to become a centre of market led horticulture in Australia". This mission emphasizes the need for horticulturists to be aware of the market impact of their actions regardless of where they operate in the complete horticultural system. Thus, the structure of the School's programmes are designed to form professional horticulturists who, whether they work in the R&D, Extension, Farm/Orchard Management, or in the several levels of careers in commerce (sales, marketing, general management), actively consider the impact on the market (domestic or international) of their decisions/actions.

The thrust of the School's mission is reflected in the philosophy that drives its four key operations; they are:-

1. Undergraduate teaching paradigm.
2. Postgraduate studies.
3. Research
4. Outreach to Horticultural Industry.

Undergraduate Teaching Paradigm: The integration of marketing and business disciplines as core subjects in both the Bachelor and Associate Diploma programmes signals the School's determination to produce graduates who understand the need for strong market orientation in an industry that predominantly produces perishable products. The educational philosophy adopted by the School is a knowledge-based, problem-solving approach. This integrative educational model combines the acquisition of a disciplinary knowledge base (through lectures and practical work) with the development of self-directed, investigative learning skills (through real-world projects that form part of the formal lecture/practical work programme). Depending upon their career choice, students may add to their core studies those subjects of a 'more science' or a 'more commerce'
nature as is appropriate (diagram 1).

In 1993, the School has 170 students in the Bachelor and 90 students in the Associate Diploma programmes.

**Postgraduate Studies:** Horticulture has been in the vanguard of postgraduate research developments within the University of Western Sydney and currently has 40 postgraduate students enrolled, of which 30 are enrolled in research degrees (PhD and MSc Hons). Most research students are full-time, supported by a range of APRA, Industry and Overseas Scholarships.

The School’s first PhD graduand, Jenny Jobling, will receive her degree at the June Graduation Ceremonies.

**Research - Horticultural Export Development Centre.** The School has adopted a research philosophy of applying state-of-the-art science and technology towards the development of Australia’s Horticultural industry in the context of sustaining and enhancing the environment. This research is conducted under the banner of the School’s research centre, the Horticultural Export Development Centre.

This research philosophy leads to some horticulture staff undertaking strategic research in plant physiology, pathology and biotechnology, as well as more applied research in horticulture. The School considers it extremely important that the linkages between strategic and applied research are maintained and nurtured through dynamic research projects in order to ensure that the horticultural industries can benefit from technological advances.
As a consequence of this philosophy, the School currently holds 6 ARC awards in the strategic research area as well as many industry sponsored research grants from the Horticultural, Rural Industries and Honey Bee R & D Corporations. The School has been successful in these initiatives and currently more than 30% of its budget is derived from external research grants.

**Outreach to Horticultural Industry & the Environment:** The School outreaches to industry through formal mechanisms, and through informal (consultancy) projects. Amongst the formal mechanisms are: Hawkesbury Integrated Pest Management Service, Hawkesbury Honey- Bee Breeding Programme, Seed Priming Contract Service, Mushroom Industry Staff Training Programme, Plant Variety Rights (PVR) Pilot Testing Centre. The School also conducts industry workshops (short courses) on Safe Handling and Storage of Pesticides, and Tissue Culture Techniques. Through individuals or groups, staff of the School undertake consultancy projects across all disciplines represented in the School. The School also has strong links to environmental groups, such as Greening Australia.
Bachelor of Horticultural Science—Degree Structure and Career Options

Core Subjects
Subjects Common to all Major Streams of Study: Science & Technology, Environmental Horticulture, Business & Marketing

Year 1
Science/Technology Elective Subjects
Design/Environmental Horticulture Electives
Business/Marketing Elective Subjects

Year 2

Year 3

Pure Research
Research & Development
Government Extension Services/Education
Farm, Orchard or Nursery Management
Environmental Horticulture
Marketing
Technical Sales
Management or Consultant
FOREWORD

As Systems Analysts we are aware that we carry into every 'problem' situation the mental baggage, accumulated over a lifetime, that is our prejudices & biases. We are taught that we must suppress this component of our 'bag of tricks' and, as individuals, are more or less successful in so doing.

There are however, some biases (often implicit and unrecognized) that are so intense that they constitute convictions and, because we truly believe that these are rooted in the valid learning experiences of our lives, they profoundly influence our situational judgement.

I wish the reader of this document to be aware of two key personal convictions of mine; they go to the conceptual base of the entire document:-

1. Rural industry in Australia is in a crisis, the like of which it has never before experienced. Forces in the 'global village' have acted to profoundly undermine our producers of traditional agricultural commodities in such a way that conventional 'solutions' cannot address the sorts of problems now being encountered. Indeed, the yet to be realized solution(s) may necessitate a complete restructuring of rural industry. Such restructuring will issue from the conceptualization of a new and different world view of what Australia's role in primary production should be.
   Certain it is, at least for the foreseeable future, that both the Ricardian and the later, Heckscher & Ohlin concepts of comparative advantage (1) no longer apply; the world farm trade subsidy war between the Economic Community (EC) & the United States of America (USA) has ended that for Australia.

   The 'solutions' of reductionist science (agriculture, economic, or social) come to bear, naturally, on only components of the problem. Maslow summed-up this sort of narrow vision in the reductionist process in his truism; "If the only tool you have is a hammer, you tend to see every problem as a nail". (2) Tofler went a step further in synthesis by referring to the fact that; "Men increasingly find that the novel problems thrust at them can be solved only by reaching beyond narrow disciplines". (3) Over fifty years ago, Carrel had already published his conclusion; it went even further than either Maslow's or Tofler's concept; he wrote that:-

   "...syntheses, as well as discoveries, demand exceptional mental power and physiological endurance. Broad and strong minds are rarer than precise and narrow ones,...very few individuals are capable of acquiring and using knowledge of several different sciences. However, such men do exist.
   If the superiority of this kind of intellect were recognized, and its development encouraged, specialists would cease to be dangerous. For the significance of the parts in the organization of the whole could then be correctly estimated." (4) Carrel's warning about "specialists" is intimately associated with Maslow's concept (above) that practitioners of a particular discipline, seek solutions to the problems thrust upon them in terms of (first, and usually only) their own discipline.
It is my conviction that the learning paradigm of the Faculty of Agriculture & Rural Development (hereafter 'the faculty') is forming in its undergraduate students, albeit without wide recognition from industry or academia, the sort of intellect referred to by Carrel (above) and which, in my view, is of vital importance in developing a critical mass of well-placed systems agriculturists, in government, in production, and in agribusiness positions: their holistic approach will be essential to the 'solution-finding' process necessary to the coming rural industry restructuring.

In short, it is my conviction (bias) that the outputs of the faculty paradigm will be increasingly essential to rural industry in Australia. And that what the faculty is doing is of great importance to the nation. It is, in fact, working towards the encouragement, as Carrel hoped for, of a new sub-species of thinker. An appropriate label for such sub-species might be: - *Homo sapiens sapiens ceroaceae*. Readers familiar with Kolb's cycle of learning will not require a rationale for 'ceroaceae'.

2. There is a concept in marketing of 'consumer perception'. It refers to the relationship between how consumers think things to be and how they really are. The faculty has several levels of consumer perception to contend with; they are:-

a. the perception of school-leavers (and other potential students) of the faculty as a provider of education that will fit them for gainful employment in a preferred occupation in an industry that is currently depressed.

b. the perception of employers of the fitness of faculty outputs, in comparison with graduates from other institutions, to be appointed to new-entry career positions within their private & corporate rural enterprises/government departments/agribusinesses.

c. the perception of government and other funding bodies of the faculty's ability to use the resources they provide it in an effective manner.

d. the perception of other universities (academics) of the faculty's educational paradigm, and the general reputation of the faculty as a seat of higher learning, and its consequent ability to attract high calibre staff.

The consequences of not matching consumer perception with reality are of great significance for any organization. For the faculty, it can and does lead to:-

1 students electing to enter the course with expectations that cannot be realized, and, perhaps more importantly, other, more appropriate, students *not* applying, because their aspirations do not *appear* capable of being fulfilled by the faculty's offerings, and

2 employers equating the formation of faculty outputs with all others holding a similar entitled degree/diploma and, either being disappointed with the graduate's science base, or, in other less-science positions, being surprised at the graduate's *innate* ability at problem solving, communication, and interpersonal skills: These last competencies being not related by them to (because they have not been made aware) the designed academic formation of the graduate; and
3 government/university authorities placing decreasing importance on the faculty's activities, and evidencing this in terms of either reduced funding, or EFTSU allocation, or both. Thereby, over time, limiting faculty growth and development, and

4 a poor reputation, rooted in misunderstanding, amongst "members of the community of agricultural scientists who would be [are largely] at odds with a phenomenological approach to agricultural education and appalled at any variation in science content or organisation."(5). Such agricultural scientists also include the faculty's own 'Old Boys'.

It is my conviction (bias) that the faculty has not acted strongly enough with its various publics and has largely failed to differentiate both the nature and intent of the course and of the graduates thereof. This is not an uncommon event in the marketing environment: Many organizations attract erroneous perceptions about themselves because of either their failure to undertake programmes to educate their concerned publics or, they do so, but incorrectly.

The research here reported has been undertaken with a concern to minimize the influence of these (biases) convictions. The outcome of the research has reinforced them.
ACKNOWLEDGEMENTS

During the course of this inquiry I have benefited greatly from the collective wisdom, generously given, of a network of people in academia, in government departments, in rural enterprises, in agribusiness, and in consultancy practices. It is not possible here to record my sincere gratitude to each of these helpers-along-the-way. Yet I would have them collectively know that I did then, do now, and always will remember their kind help.

There are several advisers who took special interest in this inquiry; they have gone far beyond the call of personal wisdom generously given. In this group of helpers, I wish to especially thank:-
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Richard Hely, Managing Director, Agri-Mark Consultants Pty. Ltd.
Marcus Hodgson, Managing Director, Marcus Hodgson Consulting Pty. Ltd.

To my academic supervisor and mentor, Associate. Professor Roger Packham, a separate thank-you. His critical analysis of the several stages of conceptual development of the inquiry led to re-siting of key foundations from the sands onto the rock.

To the members of the Action Research team (Richard Bawden, Don Lundie-Jenkins, Bob Macadam), my thanks for your patience, persistence, and interest.

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ATTESTATION

I, Walter H.C. Potts, certify to the Postgraduate Studies Committee of the University of Western Sydney - Hawkesbury that the work here presented has not been submitted to any other institution for the purpose of obtaining a higher degree.

[Signature]

13th of June, 1993
EXECUTIVE SUMMARY

Beginning in 1978, the learning paradigm of the Faculty of Agriculture at the (now) University of Western Sydney - Hawkesbury was progressively altered from the classical didactic approach to, by 1985, a student self-directed, experiential learning environment. This entailed shifting from a faculty-perceived narrow agricultural production perspective to one of a multi-disciplinary rural development focus.

This inquiry had origins in the academic staff's growing sense of dis-ease (by 1987) over, (a) a feeling that traditional employers of faculty outputs were becoming less satisfied with the 'new paradigm' graduates, (b) an awareness of 'tension' in the student body and, (c) the perception that academic peers in other agricultural institutions were not supportive of the new learning paradigm. It was felt by staff that the marketing of the faculty outputs should be examined.

The focus of this systems inquiry is that of a marketer examining a well-established faculty task (function), with the objective of determining how well that task is being performed, and what (if any) remedial action is indicated. (See Section 1)

The study was conducted on a part-time basis. Given that for over two years I was lecturing at RMIT in Melbourne, and during semester breaks was lecturing in their overseas educational programme in Singapore, the opportunity to progress the action research phase with the team at Hawkesbury was severely restricted. Now back at Hawkesbury, and with the finalization of this report, the ART will begin a new cycle by considering which of the changes herein recommended are desirable & feasible to implement.

The inquiry indicates that there has been a failure to maximise potential in the faculty subsystem that is responsible for communication with concerned publics. The failure is general, in that it was not confined just to communication with employers of faculty outputs. All publics were involved; the faculty's separate 'messages' were not being sensibly delivered to employers, prospective students, undergraduates, academic peers, and government. (See Section 2)

Analysis of the issues led to the development of a marketing (information) strategy that recognises the need to re-order the faculty's information-formulation & delivery subsystem. A series of proposals is advanced for consideration and debate by the Action Research Team as to which of these several actions should be considered as desirable and feasible for implementation. The estimated costs of implementation of the plan in toto are presented on an item by item basis. (See Section 3)