ADMINISTRATION FOR DEVELOPMENT

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INSTITUTIONAL GOAL FORMULATION AND RATING: A PAPUA NEW GUINEA CASE STUDY

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Introduction

Within the general context of education in the Developing World, this paper looks at the use of the Delphi technique as a goal formulating and rating method in connection with the recently established Pacific Adventist College (PAC) in Papua New Guinea (PNG). Over fifty participants from various backgrounds were involved in the Delphi procedure. Participants did not meet in a face-to-face group situation. Instead, their opinions and judgments were elicited through a series of questionnaires. The results of the study were made available to planners and policy-makers involved with the institution, prior to its opening.

Background to the Study

The decision by the Seventh-day Adventist (SDA) Church to explore the establishment of a new post-secondary institution in PNG followed a SDA Church trend, with the opening in 1975 of Montemorelos University Medical School in Mexico (Evans, 1980: 16) and the establishment of a post-secondary institution in Kenya in 1979 (Thomas, 1979:23), in order to meet the perceived need of the church's South Pacific indigenous constituency for tertiary education opportunities.

Historic, educational and demographic reasons could be cited for taking such a course. The SDA Church has been involved with education for some time. It built its first school in Papua, at Bisiatabu in 1911 (Maxwell, 1966) as part of a wider South Pacific education programme, the positive contribution of which over the years, has been acknowledged, among others by anthropologists (Groves, 1934), politicians (Somare, 1976) and educators (Hunter, 1976:152, 159). With a South Pacific constituency (excluding Australia and New Zealand) of approximately 100,000 members and 3,000 secondary-school enrolments, a viable client base appeared to exist within the church for a tertiary institution.

Goal Development

Why are goals important? It has been argued strongly that the planning process in education should begin with the clarification of educational goals. This is to be done,

> ...first in over-all terms; what society expects from education and then specifically - what is expected from each level, institution and course (Platt, 1970:40).

Toffler (1973:7) proposes that the time projection for such a goal generating exercise should be from five to ten years.

Banghart and Trull (1973:264) suggest that there also needs to be an evaluation of the relative worth of goals. Platt's (1970), Banghart's and Trull's (1973) and Toffler's (1973) statements together with the call made by Newbry and Martin (1972) for a break with traditional institutionalism and a re-evaluation of educational goals and processes in Third World countries raised the question: What goals should guide the proposed institution? The purpose of the planning exercise for the SDA Church thus became formulation and rating of goals for PAC for the decade 1980 - 1990.

Goals not only determine programme structure, but also the quality and quantity of manpower needed to implement the educational programme, the funds and facilities to be formed and the nature of the administrative process employed for the maintenance of the system. Lack of goal orientation may result in the development of alternative, competing goals, some of which could be unacceptable. Literature references (cf. Ewing, 1964:233; Johnson et al., 1967:30; Banghart and Trull, 1973:263; Scanlan and Keys, 1980:50) leave little doubt about the fundamental and crucial importance of goals in planning.

At this point it appears appropriate to raise pivotal questions in relation to the process of establishing and developing goals. Who is to participate in this process? How many should take part? How should the whole exercise proceed?

Umpleby (1970:131) points out that traditionally the source of the general method for the consideration and development of goals has been the philosophical essay in which writers make certain personal declarations about goals for post-secondary education. A typical example of this is a collection by Dobbins and Lee

(1968) entitled Whose Goals for American Higher Education? In this work various writers argue for goals that are perceived as being worthwhile for United States institutions of higher education. Another typical example, specifically relevant to Third World education, can be found in Bruner (1966:31), where an individual, possessing special qualifications, sets out to document what outputs we ought to desire from the educational process in Third World countries. The possibility that such goals may be biased, restricted and non-representative however, makes the individual approach of limited value.

Other means of obtaining goals are through group processes (Toffler, 1973:7). These often take the form of questionnaires, polling, committee meetings, seminars, brainstorming sessions and 'think tanks'.

After careful consideration of the advantages and disadvantages of the various methods of goal formulation, the Delphi technique was chosen as the most suitable methodology for the formulation and rating of goals for PAC (cf. Rieger, 1982:17-72).

The Delphi Technique, What is it?

In essence the Delphi technique is based on the principle that two heads are better than one (Helmer, 1967). It is a group process for eliciting opinions or judgments, whereby panelists, who have been chosen because of their knowledge or experience in a particular field, do not meet but answer a series of written questionnaires sent to them by the co-ordinator of the study. The second and subsequent round(s) of the study provide the participants opportunity to revise earlier expressed judgments after having been given feedback information. The process may continue over several rounds until stability of opinion is reached.

McGaw and Browne (1974:4) point out that

> Social scientists who see value in the technique seem to agree that as a procedure for establishing group opinion, it eliminated the most disastrous features of normal committee activity: specious persuasion, the unwillingness of people to abandon positions to which they have publicly committed themselves, and the coercion towards the opinion of the majority.

Gordon (1974:13) specifically endorses the use of Delphi procedures as an appropriate instrument for an education committee or school council to clarify and formulate educational goals and priorities. Hostrop (1973:76) makes a similar recommendation:

> Delphi provides a means whereby a spanking new institution can ascertain its course of direction in its early planning stages so as to be in consonance with the community it is to serve.

The question may be asked as to what advantage, if any, has the Delphi technique over the single, survey-type questionnaire. Firstly, a study by Nardoni (1973) showed that the quality of output from a questionnaire was inferior to that gained from a Delphi panel. Secondly, perhaps one of the most valuable aspects of a Delphi exercise is that panelists are given the opportunity to revise and refine their opinions. The feedback provided by the pooled judgments of other participants may be seen as a non-face-to-face interaction having potential pedagogic value (Sandow, 1971), as well as a communications value (Linstone and Turoff, 1975) that cannot be claimed for a 'one-shot' survey questionnaire. The Delphi process also tends to conclude with a moderate, perceived sense of closure and accomplishment (Veal, 1976:25). Other positive features claimed for the Delphi technique in the literature (cf. Dalkey, 1967, 1969; Judd, 1970; Weatherman and Swenson, 1974) include that it:

(a) provides a relatively easy, rapid, efficient and low cost means of gaining information from a large group of knowledgeable persons;

(b) clarifies parameters that may be poorly articulated and

(c) results in achieving greater acceptance for the outcome of the exercise on the part of the group than the consequences arrived at by more direct forms of interaction.

Cultural background is an important factor that needs to be taken into consideration when conducting a Delphi study.

> The Delphi questionnaire, like the typical written test or the conference, assumes a certain cultural background. Those with significantly different backgrounds find it exceedingly difficult to respond as requested. They may

> give the feed-back they believe will please the inquirers, or they may not respond at all (Linstone, 1978:299).

Observations by Carmichael and Knox-Mawer (1968:28, 76), Crocombe (1976:17) and Ward (1980:113) suggest that the seeking of agreement and compromise is evident in many of the Third World societies of the South Pacific region. 'Social diplomacy', or attempts to create common ground, often form the basis of community life.

> Sir Albert Henry once said that in the Pacific Way 'nobody gets left out'. There is an element of truth in it for there tends to be wider participation and less rigid drawing of boundaries of involvement in the Pacific area than in the industrialised neighbours (Crocombe, 1976:17).

Thomas (1974:132) in reference to Papua New Guinea says: 'The traditional society stressed co-operation and a communal approach to decision making'. Hence it would seem that the indigenous cultures of the South Pacific region per se, are unlikely to militate against a successful application of the Delphi technique.

Before providing a list of the research questions and a brief summary of the steps of the research method it should be noted that special care was taken in order that the accepted conventions of experimental design, which applied to the Delphi study, (e.g. population sampling, questionnaire design and construction, piloting procedures, design of rounds, survey of 'non-participants' and the use of appropriate statistical treatments) were adhered to (areas where numerous Delphi studies have been criticised).

Research Questions

The following general research questions were considered pertinent to the study:

With the use of the Delphi technique:

(a) Which goals will be formulated by participants and perceived as valid and relevant for the proposed institution?

(b) What levels of agreement can be reached among participants about institutional goal priorities?

(c) Are significant differences exhibited by identified subgroups in the formulation and rating of goals?

(d) Is there a significant difference between the goal ratings of main panel participants of the Delphi study and the goal ratings obtained from a survey of non-participants?

(e) Can results be obtained which will be sufficiently distinct to suggest or indicate clear directions for educational planning and allocations of fiscal and human resources?

Research Procedure

Given below is an outline of the consecutive and discrete stages as applied in the Delphi study which resulted in the formulation and rating of goals for PAC:

Stage 1 (a) Nomination of potential participants (population sample), commencement of round one of the Delphi study after initial contact with subjects, resulting in generating of goal statements by individuals in response to open-ended 'expressions'. (This constituted an invention phase. Panelists explored possible goals that were perceived as important.)

(b) Questionnaire construction by the co-ordinator of the study using panelists' responses. (This represented a conceptualization phase. Responses were collated and edited in preparation for a pilot questionnaire.)

(c) Questionnaire piloting procedures. (This was a validation phase. The questionnaire instrument was tested and refined, where necessary, using a pilot panel.)

Stage 2 (a) Commencement of round two of Delphi study, panelists rated the importance of goals on a six point Likert-type scale. (This represented a prioritization phase.)

(b) Individual goal ratings were pooled and the inter-quartile range calculated, i.e. the category into which 50 per cent or more of the responses fell, in order to determine the group response to each

goal statement. (This may be seen as a summation phase.)

Stage 3 (a) Reconsideration of ratings of goal statements by panelists in the light of statistical feedback provided. (This may be interpreted as a re-evaluation phase.)

(b) Individual goal ratings were again statistically aggregated in order to determine the group response to each goal statement. (This constituted a second summation phase.)

Stages 3a and 3b may be repeated in a Delphi study, depending on whether a terminating point has been reached. The attainment of individual stability (Chaffin and Talley, 1980:68) was used as a stopping criterion, while the 'index of predictive association', (Goodman and Kruskal, 1954: 732) as an adjunct, was also computed. A decision on the levels of agreement reached for the various institutional goal statements could then be made. An analysis of institutional goal priorities, indicated in the final Delphi round, was also made, together with a comparison of the ratings of identified sub-groups.

Stage 4 A survey of non-participants was conducted. (This may be seen as an investigation or checking phase.)

Details of the composition of the main panel of the study have been included in this section because the credibility of findings in the next section of the paper may be perceived in terms of panel representativeness. The panel 'profile' is presented in Table 1.

The decision was made to aim for a proportion of approximately 20 - 30 per cent non-Seventh-day Adventists. The justification for this being that it would be inappropriate to have a disporportionally large number of individuals, who are not connected with the church, making recommendations (mostly in the form of value judgments) regarding an institution which would be owned and operated by the Seventh-day Adventist Church. This weighting of the panel in favour of 'like-mindedness' should ensure a high degree of commitment and a low drop-out rate. On the other

Table 1: Profile of Delphi Panel for Pacific Adventist College

Category	Range/Number
Occupations:	accountant, agriculturalist, administrator, author, college of advanced education/university lecturer, medical practitioner, nurse, pastor, politician, public servant, school principal, student, teacher
Educational Qualifications:	ranging from secondary education to doctoral degree
Country of Residence:	Australia, Cook Islands, Fiji, New Zealand, Papua New Guinea, Philippines, Solomon Islands, Switzerland, Tonga, United States, Western Samoa
Region of Origin:	Third World (N=27), Western Countries (N=29)
Connection with SDA Church:	SDA (N=44), Non-SDA (N=12)
Gender:	Female (N=8), Male (N=48)
Denominational Employment:	SDAs in Denominational employment (N=25)
	SDAs not in Denominational employment (N=12)

hand it was thought that a complete absence of participants from outside the Seventh-day Adventist Church (a lack of 'different-mindedness') would result in 'inbreeding'. The mix was thus a compromise, but one which did not exclude the examination of sub-group characteristics.

It should also be noted that it was not intended to have such a small number of female participants on the panel. Under-representation occurred because of the restricted number of women with the relevant knowledge, experience and background pertaining to the study.

Major Findings

In the invention phase, general support for the establishment of the institution was expressed by a representative fifty-six member 'PAC panel'.

The goal generation process resulted in five hundred separate institutional goals being formulated by participants. The goal statements when collated into clusters and edited for overlap narrowed down to sixty-six distinct goals in fourteen categories. The categories were: governance, religious and cultural orientation, external environmental influences, client identification, client entry criteria, staff selection criteria, curriculum, service, manpower requirements, facilities, educational practice and innovation, excellence, equality, and miscellaneous.

An analysis of levels of agreement at the end of round three, at which stability of opinion had been reached, showed widespread general agreement among panelists on all but a handful of goal statements. Use was made of an arbitrary statistical cut-off criterion to form a list of twenty-eight priority goals, which are given below. (On the Likert-type scale a rating of 1 means that a goal is perceived as being of 'extreme importance', ratings of 2, 3, 4, 5 indicate goals of high, moderate, low and least importance respectively, while a rating of 6 signifies rejection of the goal.)

Priority Goal List

Category/Institutional Goal Statement	Rating Mean
Governance	
1a. To respond to the control of a representative governing body selected from within the church organization.....	1.8
Religious and Cultural Orientation	
2a. To build a philosophic foundation that emphasizes the Biblical view of man, culture and society, work, art and technology.....	1.5
Client Identification	
4. To cater for students who are members of the church organization.....	1.9
Client Entry Criteria	
5a. To select students for admission with the capacity and background qualifications necessary for succeeding in the area of post-secondary study.....	1.9
b. To admit students who are motivated by service to others (the constituency of the church, the community, the region) as opposed to self-interest.....	1.8
d. To accept applicants who are desirous of being in harmony with the principles, ethics and guidelines of the institution.....	1.8
e. To give enrolment preference to students from South Pacific developing countries.....	1.8

Staff Selection Criteria

6a. To employ staff who possess qualifications and experience relevant to educational needs in developing countries in the South Pacific..... 1.6

b. To appoint staff who identify with the goals and programmes of the institution... 1.5

Curriculum

(i) To provide education and training in the following areas:

7c. Agriculture and the Environment..... 1.7

g. Health Education (Preventive)..... 1.7

m. Teaching..... 1.6

n. Theology..... 1.6

(ii) To offer courses at the following levels:

p. Degree..... 1.9

Service

8a. To respond, in particular, to the real needs of the Seventh-day Adventist Church in the developing countries of the South Pacific.... 1.5

Manpower Requirements

9a. To prepare national personnel to assume responsibilities presently held by expatriates..... 1.8

b. To carry out an in-service function by extending the education and skills of national personnel presently employed by the church organization..... 1.9

c. To produce qualified individuals who are personally committed to serve the community and the church in the South Pacific developing countries..... 1.5

Educational Practice and Innovation

10a. To promote a balanced work-study approach to education, which emphasizes the development of the whole person..... 1.4

d. To demonstrate the principle of self-reliance to the church and community..... 1.8

Excellence

11a. To uphold a high standard of academic excellence..... 1.8

b. To graduate students whose qualifications are recognized by developing countries in the South Pacific..... 1.9

c. To serve as a model of post-secondary education in developing countries in the South Pacific..... 1.8

Equality

12b. To promote a non-elitist spirit..... 1.9

Facilities

13b. To utilize an architectural style that takes into account Pacific cultures, climatic conditions, cost-effectiveness and possible expansion..... 1.8

d. To use the facilities the whole year round..... 1.9

e. To operate as a residential institution..... 1.8

There were relatively few significant differences in the ratings of sub-groups within the overall Delphi panel. The significant differences that did show up were mainly due to religious and cultural backgrounds. Non-SDA panel members rated three goals relating to institutional response to outside control ($p \leq 0.05$), influence ($p \leq 0.05$), and client identification ($p \leq 0.01$), significantly higher than SDA panel members. On the other hand, SDA Delphi participants rated goals relating to the following aspects significantly higher than their non-SDA counterparts: institutional evangelization ($p \leq 0.01$), accepting clients who wished to be in harmony with institutional guidelines ($p \leq 0.05$), institutional response to church needs ($p \leq 0.05$), the location of the institution away from urban centres ($p \leq 0.01$), and courses to be offered at degree level ($p \leq 0.05$). Third World panel members rated six goals relating to the following specific areas higher than Western panel members: institutional response to outside control ($p \leq 0.05$), projecting an image of what the church stands for ($p \leq 0.05$), the need for administration courses ($p \leq 0.05$), adopting academic student selection criteria comparable to other similar tertiary institutions ($p \leq 0.05$), recognizing in programmes the role and status of women ($p \leq 0.05$), and institutional moral support for graduates' aspirations for reasonable working conditions within a South Pacific socio-economic context ($p \leq 0.01$).

Two goal statements appeared to attract special 'discussion'. Firstly, even though goal 4c. ('to reserve enrolment places for married students') is not included in the priority list of goals, it attracted several noteworthy comments from panelists. At one end of the continuum, respondents felt that to reserve enrolment places for married students was difficult to implement and quite unrealistic. Views expressed at the other end of the continuum saw married students as contributing stability and maturity to the student body as well as benefiting from the proposed institution. One panel member not associated with the SDA Church rated goal 4c. as 'extreme' because its attainment 'should overcome a major problem in the PNG education system'.

Secondly, of all the goals rated in the Delphi study, the goal statement relating to a work-study approach to tertiary education was rated of greatest importance, reflecting respondents' opinions about the importance of a balance between work and study in a Third World tertiary educational programme. Not only may respondents have had in mind the overall personal benefit to the individual of such a programme, but may also have regarded the goal in a wider societal context, i.e. in some Third World areas,

as for example in many parts of Papua New Guinea, males often leave most physical work to females. A rating of extreme importance for this goal could be interpreted as envisaging a break in the perpetuation of such cultural disparity, beginning with an educated section of society. Females rated the goal significantly higher than did males ($p \leq 0.01$).

What kind of picture of the institution emerged when all the separate priority goals were put together. The institution that became apparent is a Christian one; denominationally operated and owned; whose staff, students, programmes and educational practices are perceived as being committed to a philosophy that emphasizes the Biblical view of man, culture and society, work, art and technology. In the first instance it is perceived as serving the needs of its own church. In order to do this, it is seen as playing a role of vital importance to fulfill the manpower requirements of the Seventh-day Adventist Church. The wider community benefits from the proposed institution indirectly. The proposed institution is perceived as being selective in its (a) client intake, (b) teaching faculty and (c) adoption of academic standards, all of which point to an overall emphasis on excellence.

Students are perceived as people not apart from society but engaged in a work-study approach to education that is part of a policy of institutional self-reliance. The institution is perceived as operating with modern residential facilities which will be used throughout the year. The courses offered are perceived as being mainly at the degree level (and possibly at the diploma level) and according to the perceived priority rating would include Teaching, Theology, Health (Preventive), and Agriculture and the Environment. The proposed institution is also perceived as having an in-service function.

Overall there also emerged what might be called a slightly negative side of the institution. The emphasis on overall excellence may be perceived by some as exclusiveness; this together with other perceived characteristics (limited outside contact in the area of education, sticking to seemingly traditional curriculum areas, and a reticence to experiment with teaching-learning methods) may result in a conservative and non-innovative image for the institution.

The survey of non-participants showed that, with the exception of one instance, there were no significant differences between the rating of goal statements by the main Delphi panel and those ratings obtained from non-participants. This finding gave added credibility to the final outcome of the Delphi procedure.

A discussion of findings would not be complete without giving some consideration to formulated goals which were not rated as being of 'high' or 'extreme' importance by panelists. Indeed it might be asked whether the direction of the institution would be substantially altered had different goals been preferred. In summary, there were three goals whose 'low' and 'moderate' ratings, if changed, might have contributed to a change in direction. These goals were:

1c. To respond to control located outside the Seventh-day Adventist Church (rating mean - 4.1),

7o. To provide education and training in traditional cultures and arts and crafts (rating mean - 3.1),

7r. To offer courses at the Certificate level (rating mean - 2.8).

Priority for these goals would have resulted in a different institutional locus of control, curriculum, and level of graduates' qualifications. The panel, however, did not 'see wisdom' in this direction.

Conclusion and Recommendations

At this point it may be appropriate to reflect on the usefulness of the Delphi technique for the purpose for which it was utilised.

The logistics of convening a panel for a face-to-face group interaction process using the same group of participants would have been formidable, extremely costly and perhaps impossible to solve. Even if the logistics of bringing such a large and diverse group together could have been managed, some individuals who took part in the Delphi study might not have chosen to participate in a face-to-face group interaction process for personal reasons. Participation in the procedure was made easy and panel members could 'get on with the job' without having to go through the niceties and accepted social conventions of normal face-to-face group interaction. The attrition rate during the study was less than 7 per cent due to the commitment of participants, a

crucial factor for the validity and success of the study.

During the progress of the Delphi study, the contribution of an efficient postal system to the successful completion of the procedure became evident. Although some strike problems were experienced, no significant disruptions were caused.

Both the priority goals list and the general list of institutional goal statements represent the combined judgment of a large, representative and knowledgeable panel. The final outcome of the Delphi procedure thus could not be brushed aside as merely the views of a vested interest group or a small clique, but had to be accorded a considerable measure of credibility by planners.

What implications arose from this study? The perceived goals for the institution appear to have direct implications for the quality of schooling at the secondary level of the Seventh-day Adventist education system in the South Pacific islands region in the future. Given the inter-connection between secondary and post-secondary education, the number of qualified clients available for the proposed institution is to a large extent determined by how many students successfully complete their upper secondary education. This clearly indicates that planners within the Education Directorate of the Seventh-day Adventist Church will be required to devise and implement ongoing strategies, programmes and tactics in order that the goals for the post-secondary institution can be reached. This further implies that those affected by the establishment of the institution should be provided with information about future strategies, programmes and tactics. It therefore appears essential that the Education Directorate of the Seventh-day Adventist Church communicates and clarifies, for example, what are to be the future roles of 'feeder-institutions' like Sonoma College in Papua New Guinea and Fulton College in Fiji.

In order to further refine the results of the Delphi study it might be beneficial to determine significant interaction or patterns of interaction between and among formulated goals. In order to do this, the output of the final round of the Delphi procedure would become the input for a Cross Impact Matrix exercise, the results of which could further enhance the utility of the planning data and place the formulated and rated goals for the institution into even sharper focus.

To what extent can the outcomes of this Delphi study be generalized? In view of some differences in goal rating behaviour being related to religious and cultural orientation, it may be unwise to transfer the results of the Delphi study to populations with significantly different value orientations. The possibility exists, however, that the results might be useful to other Christian communities as well as the Seventh-day Adventist Church in other parts of the Third World.

In the final analysis, the formulation and rating of goals, critical as it is to the development of the institution, may be seen as representing only a beginning. Now that the institution has been established and after it has been functioning for some years it appears that one of the posited goals should be given due attention, i.e. that a continuous programme of self-monitoring and evaluation of the institution be operated. This might determine whether the goals perceived as being important by this study are being reached.

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