

TEACHERS' PERCEPTIONS OF THE IMPLEMENTATION OF A SYLLABUS INNOVATION

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Introduction

The innovation process, in the context of educational organisations, refers to what actually happens as an idea or product is translated into operating reality within educational organisations (Berman and McLaughlin, 1977). The literature is replete with studies which analyze the adoption phase of curriculum innovations, but it is remarkably deficient in studies which contribute to our understanding of the implementation phase. There are many reasons for this, including the relatively easy access to sales figures to indicate adoptions, and a common priority among project developers to assess adoptions of their products in the short-term with little or no concern about the longer-term implementation phase. Above all, implementation as a process is difficult to measure. Fullan and Pomfret (1977, 336) highlight this point when they outline various dimensions of implementation in practice - changes in materials, structure, role/behaviour, knowledge and understanding and value internalisation. It is difficult to isolate all the factors relating to the actual use of an innovation. Yet, unless implementation factors are examined, it will not be possible for educators to gain insights into why so many innovations fail to become established.

This study investigates the implementation of a geography syllabus over the period 1976-80. Because the geography teachers surveyed were all employed by a state education system, this tended to have definite influences upon their levels of implementation. However there were more important influences, especially the effects of an external examination system and a very active geography teachers' association. It is necessary to provide some background about each of these three sets of influences before detailing the problems and achievements perceived by teachers in implementing the syllabus.

The State Education System

Over recent years there have been increasing attempts to research the decision-making structures and processes of state education departments throughout Australia. Commencing with occasional doctoral studies in the 1960's and 70's, for example Horner (1970), there have recently appeared a number of books and monographs including those of Pusey (1976, 1980), Jecks (1974), Smart and Alderson (1980). The Schools Commission (1978) and the Curriculum Development Centre (1975) have also commissioned reports which deal directly or indirectly with state education department functions and activities. Unfortunately, very few studies have become available which detail levels of implementation by teachers within state education systems.

Overseas studies of similar organisation structures provide general comments about levels of implementation. For example, within the context of provincial education systems in Canada, Young (1979, 117) suggests that in the case of curriculum decision making, it is the role of central office personnel to initiate decision making and it is the role of the teaching staff to implement the decisions that are made.

Teachers have a strong classroom orientation and this restricts their interest in or background for effective participation in curriculum decision making at a wider level. As Lortie (1975, 212) puts it, they are not orientated toward long-term curriculum decision making and "are more likely to experience reward if they can punctuate their work, concentrating on short range outcomes as a source of gratification".

As suggested in an earlier paper by the authors (Hill & Marsh (1979)), the 'authority decision-making framework' developed by Rogers and Shoemaker (1971), provides some insights into the implementation process. This framework incorporates a superordinate decision-making unit and a subordinate adoption unit. Decisions about which innovations are to be adopted and implemented are made by the superordinate unit while the adoption unit, comprising classroom teachers, are given the task of undertaking the implementation process. In this study, the superordinate unit is the external examining board but because membership of this board also includes senior officials from the state education system, it might be expected that the latter have some considerable influence upon implementation in their daily role as guardians of the procedures and policies operating within government high schools.

Rogers and Shoemaker (1971, 310) suggest, with reference to this two-tier hierarchical system, that teachers might implement an innovation in various ways. Two actions in particular are cited and these include the teachers who dislike a specific innovation but realize that they have to overtly behave as if they accept it. These teachers are categorised as 'dissonant adopters'. Then again, there are the teachers who reject an innovation and are willing to make this stand publicly. These teachers are categorised as 'dissonant rejectors', and supposedly their number would be relatively small, being influenced by the supply and demand for teaching positions. The concepts of 'dissonant adopters' and 'dissonant rejectors' have relevance to this study because the innovation, a new senior school geography syllabus, became the mandatory geography course in 1975. Geography teachers did not have a choice between several alternative geography syllabi. The only actions open to them were different ways and levels they might decide to use in implementing the syllabus.

The External Examination

External examinations can have a major influence upon the levels of implementation of a syllabus in both direct and indirect, positive and negative ways. The announcement that a syllabus will be subjected to an external examination may elicit feelings of fear and trepidation among students but it might equally produce strong support from teachers and parents. Many teachers may prefer teaching toward an external examination, because they can gain definite ideas about the level of content and range of topics to be covered. Parents may be very desirous of their children sitting for external examinations because of their role as entry-certificates into tertiary level institutions.

Curriculum developers often take steps to include their new syllabus or curriculum within existing external examination frameworks. A recognised external examination for their product is one sure way to guarantee large-scale adoption and implementation, and also credibility and status for the personnel involved in the curriculum development. The Schools Council project, Geography for the Young School Leaver, has achieved the honour of being the most successful of all Schools Council projects, largely due to its incorporation in O level, Mode II and Mode III CSE examinations (Stenhouse 1980, 174).

But there are some negative aspects about external examinations. It is undoubtedly true that external examinations can provide unintended directions and emphases for a syllabus. It may be that certain concepts included in a syllabus (for example, dealing with attitude issues) are difficult to incorporate within the traditional objective test items or essays. Teachers, students and examiners all try to play the system. The previous examination papers provide cues for teachers and students about the areas of emphasis and topics to ignore or at least cover in summary fashion. Examiners also make subjective judgements, often based upon unwarranted assumptions about what should be included as examination questions. Too often, they will avoid, as Higginbottom lamented with regard to Geography for the Young School Leaver (1980, 177) 'important aspects

such as value and attitude clarification questions'. Cameron and Hill (1977) suggest that if there are not clearly stated objectives for an examiner to follow, examiners will either ask their own favourite specific questions or ask very general questions which would allow practically any content matter to be used to answer them.

It would seem that the external examination has had considerable influence upon geography teachers operating within West Australian state education schools. As indicated in an earlier paper (Hill and Marsh (1979)), the appearance of the new syllabus in 1975 also coincided with changes in the administering of external examinations.

The Board of Secondary Education (B.S.E.), a statutory body established for the purposes of approving courses of study and certification of achievement of students at the secondary level, took over the function of certification of year twelve students from the Public Examinations Board in 1975. Also in the same year, the name of the external examination was changed to the Tertiary Admissions Examination (T.A.E.). This examination is conducted by the Tertiary Institutions Service Centre (T.I.S.C.), a service organisation established by the tertiary institutions in Western Australia.

Currently, assessment at the senior school level is carried out for two main purposes, namely course certification and selection for tertiary entrance, with the B.S.E. responsible for certification and T.I.S.C. for selection. The B.S.E. issue a Certificate of Secondary Education (C.S.E.) to students at the end of year twelve. The certificate reports achievement in each subject studied in terms of decile ranks. Results are based upon a combination of 50% moderated school assessments and 50% examination results. The T.I.S.C. process results from the T.A.E. in accordance with the requirements of the tertiary institutions. The University of Western Australia relies entirely upon T.A.E. results in making their selection while other tertiary institutions make use of supplementary information including school assessments.

For each subject, a Joint Syllabus Committee has been established which is an advisory committee of the Board of Secondary Education and the Tertiary Admissions Examination Committee. Each committee normally comprises eight representatives from the tertiary institutions, eight from government high schools and four from independent high schools. The introduction of the new geography syllabus in 1975, came at a time just prior to the establishment of the Joint Syllabus Committee in Geography, but this body has subsequently endorsed and monitored the syllabus and its use in the schools. The same syllabus in geography is taught to students whether they are studying for the C.S.E. Certificate or are aspiring to tertiary level study.

For all geography students then, the external examination looms large. Students are geared to study hard for it, parents demand it, and teachers are ever-reminded of the end-of-year examination when planning their units and daily schedules.

The Subject Association

There are numerous overseas examples of powerful subject associations. For example, in the U.S.A. the National Council of Geographic Education (N.C.G.E.) has developed a strong and active membership, attracts considerable publicity each year for its annual convention and publishes a well respected and widely circulated journal. Fien (1981), in a recent publication, describes the powers of the Geographical Association in the U.K. It acts as a clearing house on recent materials and developments, its members are involved in various research projects, a major conference is held annually, and their executive committee acts as a pressure group when and where necessary.

Subject associations in Australia have developed along similar lines, although their potential for undertaking all these functions have yet to be realised. Their memberships tend to consist of a wide cross-

section of backgrounds and interests, including young and old teachers; teachers from private and independent schools, government schools, universities and colleges; and senior administrators from private and government schools. In addition, many of these members are often represented on the examination boards as examiners, markers or committee members. The one unifying factor for them is their desire to improve the teaching of their subject in schools. In times of rapid change, the subject associations may be mobilised for widespread action. At other periods their major focus may be upon maintaining membership interest by scheduling debates and seminars on topics of some controversy, hosting a series of in-service workshops and generally monitoring the impact of their subject as taught in the schools.

It is interesting to note how events shaped and were shaped by the Geography Teachers' Association of W.A., which was initiated in 1970. As indicated earlier, senior school geography was controlled by an external examination under the direction of a Public Examinations Board up until 1974. In the 1960's, Geography was an extremely popular subject, attracting the major number of students as an individual subject after English and Mathematics. But there was considerable concern among teachers about the physical/regional geography nature of the course and this came increasingly under attack from the local university in which a newly created Chair in Geography had been established. From another front, the concept of external examinations was coming under close scrutiny from state education reports (Robertson Report (1962-3), Neal Report (1966) and the Dettman Report (1969)). The Dettman Report in particular, drew upon evidence enunciated in U.K. reports (The Norwood Report (1941) and the Beloe Report (1960) to conclude that

"the purpose of an assessment system in secondary education ought to be to determine the extent to which educational goals have been achieved; the system in Western Australia at present tends to work in reverse in the sense that the educational goals are determined by the assessment system".

(Dettman Report, 1969, 103).

Matters appeared to come to a head in 1969 when conflicting pressures from the university, state education department and some vocal, concerned teachers, led to the formation of the Geography Teachers' Association of W.A. (G.T.A.W.A.) which was formed in December of 1970 with syllabus reform as one of its main tasks.

Of considerable importance was the one day conference hosted by G.T.A.W.A. in June 1971. As G.T.A.W.A. was formally affiliated with geography associations in other states, especially N.S.W., it might have been expected that powerful individuals from these sister organisations would be requested to lend support. At the June 1971 conference, vigorous denouncement of the existing geography syllabus was made by a local university academic and alternative approaches and paradigms were presented by a well known geography educator from N.S.W. The overall effect seems to have been that a small group of executive members of the G.T.A.W.A., with positions of influence in the university and in the state education department, rose to the challenge of producing an alternative syllabus. The new document, according to Hill (1976, 20)

"was put together by the two leading members of the Committee in the relatively short time of 8-9 months, during 1972, circulated in draft form in April 1973, disseminated through circulars and in-service courses and introduced with minor amendments into the school system in 1974".

Without detracting from the initiatives and drive of the authors of the new syllabus, it would appear that this development and dissemination period was incredibly brief, as revealed by the two comparisons below. It appears overly hasty by comparison with a recent syllabus change in Queensland. In this case, the Queensland geography syllabus committee attempted to develop a process, inquiry-oriented geography syllabus using Australian content. The syllabus, entitled Australian Geographical Inquiries (A.G.I.), was developed during the period

1976-1977, trialled in 1978, and retrialled in 1980, prior to it becoming generally available to Queensland schools (Bartlett (1981)). Although direct comparisons can't be made with the Secondary Geographical Education Project (S.G.E.P.) in Victoria because it spans six years of high school, the elaborate strategies for the trialling, dissemination and take-up of S.G.E.P. units (Hartnell, 1977) further highlights some of the deficiencies in the processes undertaken in implementing the Western Australian syllabus.

As might be expected, teachers involved with the new West Australian geography syllabus had considerable difficulties in the early years of its implementation despite efforts by the Geography Teachers' Association of W.A. to provide support. Many members pressed for an amplification of the syllabus document so that teachers might gauge the range and depth of content to be used to teach the new concept clusters. This seemed to be particularly crucial because of the lack of objectives in the syllabus document. Teachers could only glean an idea of content from sample examination papers and from reference and textbooks cited as being important. One can but wonder how chief examiners rationalised their questions in the written examination papers in the absence of any syllabus objectives.

The Joint Syllabus Committee was finally persuaded to produce a supplementary document entitled Geography Syllabus Amplifications. The G.T.A.W.A. had successes in other ways too. The association ran a series of in-service courses and workshops on the new syllabus. 'Enrichment' sessions were also provided for final year geography students. A very successful national conference, the Fifth National Conference of the Australian Geography Teachers's Association was held in Perth in January 1976.

In all, the association provided considerable support to geography teachers, particularly at a time when the syllabus change appeared to many teachers to be monumental, and for some teachers, incomprehensible. The G.T.A.W.A. (since renamed the Geographical Association of W.A. (G.A.W.A.)), appeared in fact to fill a void by its extensive range of in-service activities - activities which might normally be expected to be undertaken by the teacher employer authority (Table 1).

Research Design

The purpose of the study in general terms was to focus upon the implementation levels of a T.A.E. Geography Syllabus as revealed by the perceptions of teachers teaching the syllabus. More specifically, the follow-up study completed in 1980, was to note the degree to which some major implementation problems perceived by geography teachers in 1976 had ameliorated or deteriorated after a period of four years. Indirectly, the follow-up study attempted to gauge the effectiveness of some dissemination strategies, and the support activities and materials available to geography teachers from both state department sources and the geography teachers' association.

The original study was undertaken in November 1976 and involved a questionnaire being sent to all (163) teachers of geography in state high schools in W.A. As reported in an earlier paper (Hill and Marsh (1979)), the questionnaire contained a biographical/teaching preferences section and a second section containing a semantic differential instrument, both of which were piloted with a group of geography teachers earlier in the year.

This follow-up study undertaken in November 1980 used the same questionnaire and it was sent to all (162) teachers of geography. The return rate of 56% was a little lower than the first study which had a 63% return rate. It was not possible to ensure that the original sample of geography teachers were the only ones who completed the follow-up questionnaire. However, because all geography teachers were surveyed on both

Table 1.
In-Service Courses in Geography Available to Geography Teachers 1976-80

	Sponsored by Geographical Association of W.A.		Sponsored by W.A. Education Department
1 Duration	Series of 6 x 2hr sessions	2½ days	2 days
9 Eligibility	Members and non-members	Members and non-members	Senior Masters
7 Major Emphasis	Specific Topics on the TAE Syllabus	Fieldwork topics	Programming based upon the syllabus
7 Venue	Metropolitan	Country	Metropolitan
1 Duration	2½ days		2 days
9 Eligibility	Members and non-members		Senior Masters
7 Major Emphasis	Fieldwork topics		Programming based upon the syllabus
8 Venue	Country		Metropolitan
1 Duration	2½ days	Series of 5 x 2 hr sessions	
9 Eligibility	Members and non-members	Members and non-members	
7 Major Emphasis	Fieldwork topics	Specific topics on the TAE syllabus	
9 Venue	Country	Metropolitan	
1 Duration	2½ days		2 days
9 Eligibility	Members and non-members		Senior Masters and Teachers in Charge
8 Major Emphasis	Fieldwork topics		Specific topics on the syllabus
0 Venue	Country		Metropolitan

occasions it might be assumed that a sizeable number of teachers who returned questionnaires in 1980, had also been involved in the study in 1976. Further support to this assertion is given by the 1980 survey data which indicated that 62% of the sample of teachers had taught for nine or more years, compared with 47% who had taught for the same period in the 1976 survey. Although the usual caveats have to be noted with regard to the authenticity of responses obtained from mailed questionnaires, a comparison of data collected for 1976 and 1980 revealed highly similar results.

1. Teaching Methods Used

The aims of the T.A.E. Geography Syllabus state quite explicitly that the following student achievements are intended:

- "- understanding and application of geographic concepts
- conducting problem-centred inquiries into geographical resource material using library research, laboratory techniques and fieldwork procedures
- observing, recording, organising and interpreting data available from a variety of sources
- forming and critically examining generalisations from a wide variety of data
- developing skills in the presentation of geographic statements and investigations, orally and through written work and by means of maps, models, photographs and other graphic techniques".

(Board of Secondary Education 1976, 139; 1980, 123)

It might be expected therefore that teaching methods which emphasise student-initiated, inquiry activities would figure prominently in the geography teachers' repertoire. Table 2 indicates typical teaching methods used by geography teachers, in terms of the total time spent by students on each mode. It is clear from the data for 1976 and 1980 that this contention cannot be supported. For example, the modes which tend to emphasise student-

initiated inquiry such as "viewing/listening", "fieldwork", "discussion/questions/talks", "extended group or individual project work", all have means below 3.1 on a five point scale. The most frequently cited modes, such as "verbal presentations", "laboratory exercises", "teacher-prepared worksheets" and "textbook based study", all seem to indicate teacher-centred, didactic methods of instruction.

An analysis of the respective figures for 1976 and 1980 in Table 2 indicates an overall stability of results for the different modes of teaching, but there does appear to be a slight trend towards teacher-centred methods. For example, between 1976 and 1980 the means for inquiry-focussed modes, such as "fieldwork", "extended group or individual project work" declined to 2.8 and 2.7 respectively. On the other hand, "verbal presentation by teachers", a teacher-centred mode, increased to 3.5 and became in fact the major mode cited by respondents. The only exception to this trend was an increase for "discussion/questions/talks" from 2.7 to 3.1.

Because the new T.A.E. Geography Syllabus was only introduced in 1975, with little time or opportunity for in-service activities to be provided for teachers to acquaint them with inquiry-oriented methods, the relatively low figures for the 1976 survey might have been expected. However, as listed in Table 1, a range of in-service courses was made available to teachers during the period 1976-80 and it might have been anticipated that teachers' classroom teaching methods would have changed as a result of these experiences. Then again, the in-service activities may have failed to produce the required learning experiences because the focus was inappropriate. Eastcott (1980, 2) refers to the limited effects of in-service days which concentrate upon providing information or attempt to initiate teachers to new content or procedures.

Table 2.
Teaching Methods Used with the T.A.E. Geography Syllabus

	1980 results*	1976 results*
1. Verbal presentation by teacher	3.5	3.2
2. Laboratory type exercises	3.4	3.8
3. Teacher-prepared worksheets	3.3	3.3
4. Textbook based study	3.2	3.2
5. Discussion/questions/talks	3.1	2.7
6. Fieldwork, excursions and out-of-class practical work	2.8	3.1
7. Extended group or individual project work	2.7	3.2
8. Viewing/Listening	2.7	2.6

* Means calculated on estimated total time spent by students on each mode, 0 = none, 5 = a lot.

2. Perceived Advantages and Disadvantages of the T.A.E. Syllabus

An open-ended item was included in the questionnaire used in both the 1976 and the 1980 surveys and which requested teachers to list what they considered to be the three main advantages and the three main disadvantages of the T.A.E. syllabus. The results are listed in Table 3.

There appears to be a contradiction between the major advantage and the major disadvantage as listed in Table 3, yet the contradiction may be a pragmatic solution to the influence of the external examination. Teachers (and students and parents) are concerned about what the geography examination will cover and so they want as much

direction as possible. They want to know in particular, what content to cover and at what level of depth and specificity. On the other hand, they appreciate the flexibility inherent in the syllabus in that practically any content taken from a continent at a point in time might be used to illustrate and teach the concept clusters incorporated in the syllabus.

From the figures listed in Table 3 it appears that teachers in the 1980 survey were not so enthused by the flexibility and freedom of the syllabus (37% down from 68%). Perhaps the experience of using the syllabus over the previous four years had proved to them that this flexibility wasn't an advantage because of the influence of the external examination. A lower degree of support for integrating subject matter with practical field work was also evident in the 1980 survey results.

Table 3.

Perceived Advantages and Disadvantages of the T.A.E. Geography

Syllabus

	<u>1980</u> %	<u>1976</u> %
<u>Advantages</u>		
1. It allows flexibility and freedom in choosing content. A wide choice of options are available to the teacher.	37	68
2. It is based on understanding and applying concepts which have application to everyday situations.	23	27
3. It enables an integration of the subject matter with practical field work activities.	13	27
<u>Disadvantages</u>		
1. It gives little direction with regard to programming, depth of coverage of topics.	56	41
2. It is beyond the capability of many students.	18	14
3. Too much emphasis on Monsoon Asia to the exclusion of Europe, the Middle East and U.S.A.	12	-

Some additional perspectives are provided by the results listed in Table 4, which summarise the major problems cited by teachers in the 1976 and 1980 surveys. In the 1976 survey, teachers appeared to have considerable difficulty covering the many aspects of the syllabus, and the 1980 survey reveals that this situation had only slightly improved. It may have been exacerbated by the problem of less academically inclined students now staying on into senior high school because of limited job opportunities. As revealed in Table 4, "catering for a wide range of student abilities" was a problem in 1976 but it had become acute in 1980. A related problem was the "availability of resource materials on W.A. and the local area". Presumably teachers perceived that there was a very limited range of local resource materials available in 1980. Finally, it should be noted that teachers in the 1980 survey had not overcome the problem of "deciding upon the depth of treatment of topics". In fact the problem was even worse, as indicated by the mean which had dropped from 3.89 to 3.63.

Table 4.

Major Problems Associated with Teaching the T.A.E. Geography Syllabus

	<u>1980 results*</u>	<u>1976 results*</u>
1. Finding time to cover all that you want to.	4.11	4.05
2. Students lack basic skills.	3.97	3.91
3. A wide range of student ability.	3.93	3.77
4. Deciding upon depth of treatment of topics.	3.63	3.89
5. Reconciling the freedom allowed by the syllabus with the constraints imposed by the T.A.E. Examination.	3.58	3.64
6. Availability of resource material on W.A. and the local area.	3.40	3.76

*Means given on a five point scale, ranging from 0 = no problem to 5 = a major problem.

3. Attitudes of Geography Teachers to the Syllabus

A semantic differential (SD) was also incorporated as part of the questionnaire to ascertain the attitudes of geography teachers to the T.A.E. syllabus. The instrument was used to find out whether teachers expressed different values and meanings to various aspects of the syllabus and to judge the extent to which these aspects of the syllabus were understood and accepted. The 1980 study used the same format of the SD as the 1976 study, namely fourteen different concepts and eight different pairs of bipolar objectives.

In the 1976 study, the final list of concepts was derived from a careful analysis of the T.A.E. syllabus and by isolating out those key words which seemed to express the emphases of the new syllabus. The list included three concepts which related to general and fundamental issues (A. Teaching Geography, B. The T.A.E. Geography Syllabus and I. The Tertiary Admissions Examination). Then there were two concepts which typified the curricular emphases of the old syllabus (E. Physical Geography and G. Continental Regional Geography). The remaining concepts all represented emphases of the new syllabus (C. Geographic Concepts, D. Spatial Analysis, F. Geographic Systems, J. Problem-Centred Enquiries, H. Contemporary World Problems, K. Working with Maps, L. Fieldwork, M. Laboratory Work, N. Local Area Studies), although K. Working with Maps is in fact an emphasis of both old and new syllabi.

Bipolar adjectives were derived initially on the basis of their representation of the classical factors of evaluative, potency and activity, as reported in Osgood, Suci and Tannenbaum (1957). The next step, was to select from this list, those bipolar adjectives which were of special relevance to teachers' understanding and acceptance of the curricular changes incorporated in the new T.A.E. syllabus. The format of the SD consisted of a seven step scale and teachers were requested to rate each of the fourteen concepts on the selected eight bipolar adjectives. The ratings were pooled across all the concepts and factor analysed using a varimax rotation.

Table 5 reveals the results of the varimax rotation for the 1980 survey, and in parentheses, the 1976 survey. Three factors clearly emerged and there was a very high degree of correspondence between the 1980 factor loadings and the 1976 factor loadings. The highest loadings on the first factor were for the adjectival pairs

Table 5.
Factor Loadings of Adjectival Pairs (Varimax Rotation) with Loadings of >.40 (1976 and 1980)

	<u>Factor I</u>	<u>Factor II</u>	<u>Factor III</u>	<u>h²</u>
1. Important/Unimportant	.83(.81)*	-	-	0.71
2. Worthwhile/Worthless	.85(.81)	-	-	0.75
3. Rewarding/Unrewarding	.78(.77)	-	-	0.68
4. Meaningful/Meaningless	.79(.65)	-	-	0.68
5. Easy/Difficult	-	-	.52(.49)	0.29
6. Clear/Hazy	-	-	.58(.68)	0.44
7. Flexible/Rigid	-	.88(.81)	-	0.81
8. Free/Constrained	-	.86(.80)	-	0.79
% Total Variance	44.7(44.7)	19.4(10.7)	14.7(9.5)	78.7(64.9)
% Variance Explained by the Three Factors	63.6(74.6)	25.4(13.7)	11.0(11.6)	100(100)

* The figures in brackets refer to 1976 data.

Important/Unimportant and Worthwhile/Worthless. These scales seemed to indicate that this was an 'evaluative' factor and it was labelled accordingly. The 'evaluative' factor represented 64 per cent (75% 1976) of the variance explained by the three factors and so it was clearly the dominant pattern.

The second factor loaded highest on the scales Flexible/Rigid and Free/Constrained. This factor was labelled 'flexibility' and again showed a remarkable degree of stability over the 1976 and 1980 survey results. The third factor was represented by the scales Easy/Difficult and Clear/Hazy. The label of 'understanding' used with the 1976 data seemed to be just as appropriate for the 1980 data.

Further analysis of the data proceeded in two stages. The first step was to complete mean ratings on each concept on each scale. Next, factor scores were obtained by computing mean ratings on each concept for the two scales with the highest factor loadings on each of the three factors (Table 7). As a final stage, these factor scores were used to construct a three-dimensional model to portray the semantic space of Western Australian geography teachers (Figure 1).

It is clear that teachers tended to use the positive end of the seven-step scales. All mean ratings above 4.00 represent positive scores and this in fact accounted for 82% of the mean ratings on a concepts - by scales matrix. A similar figure of 87% was achieved in the 1976 survey. These results indicate that teachers have overall positive attitudes about teaching the T.A.E. syllabus, and that in fact, this high level has been maintained over their last four years of teaching.

Because of the large number of positive scores it is very interesting to note the lower mean scores which reveal a less than positive attitude. The greatest number of these low mean scores are associated with the Easy/Difficult scale, being twelve out of fourteen in 1980 and ten out of fourteen in 1976. That is, the majority of the concepts in the T.A.E. syllabus were rated at the "difficult" end of the scale and some were rated as extremely difficult, as revealed by mean scores of less than 3.0.

The three lowest mean scores were for J. Problem Centred Inquiries 2.66 (2.95), I. The Tertiary Admissions Examination 2.74 (2.93) and H. Contemporary World Problems 2.89 (3.78). It should also be noted that each of these mean scores had declined at the 1980 survey, with the decline being the greatest for H. Contemporary World Problems. Two other concepts had low mean scores and these represented a decline between the 1976 and 1980 surveys, namely D. Spatial Analysis 3.09 (3.38) and L. Fieldwork 3.55 (3.84). The concept, E. Physical Geography, had a moderately positive rating of 4.08 in 1976 but had slipped to a 3.74 score in 1980. The only two concepts which improved their mean scores were K. Working with Maps 4.15 (3.97) and F. Geographic Systems 3.0 (3.16).

There were very few low mean scores for any other scale, but noteworthy were three for Flexible/Rigid. Two of these concepts recorded low mean scores which indicated that teachers felt they were having a rigidifying effect upon them and that this effect had heightened between 1976 and 1980. The two concepts in this category were E. Physical Geography 3.30 (3.45) and I. The Tertiary Admissions Examination 3.19 (3.59). A similar result occurred with the scale Free/Constrained in that the same two concepts registered low mean scores, indicating that teachers felt that these influences were constraining their teaching, and that this effect had become even stronger between 1976 and 1980. The only other concept to register a less than positive score on any scales was G. Continental Regional Geography on the scales Flexible/Rigid and Free/Constrained. As this concept represented a major feature of the old syllabus it might be construed that these scores reflected teachers' desires not to return to that particular teaching emphasis.

Two concepts stand out from the rest as having concerns for teachers. On three different scales, I. The Tertiary Admissions Examination and E. Physical Geography had low mean scores. On two different scales, G. The T.A.E. Geography Syllabus and H. Contemporary World Problems had low mean scores. They all represented a decline in scores (a more negative attitude) between the 1976 survey and the 1980 survey.

Figure 1 enables each concept for the survey in 1980 to be seen in relation to a three-dimensional semantic space as defined by the three factors, evaluation, flexibility and understandability. The two concepts, L. Fieldwork and M. Local Area Study are located close to each other in semantic space. Of these, L. Fieldwork is the most highly valued and second highest in flexibility of all the concepts. In 1976, L. Fieldwork and N. Local Area Studies were rated as the highest.

Two other concepts are located close together in the 1980 model, namely A. Teaching Geography and K. Working with Maps. These concepts were rated as highly valued and flexible and similar to their ratings in 1976. The 1980 model reveals that four concepts are bunched close together and indicate a neutral rating for understandability and flexibility but are moderately highly valued (Concepts C, D, F, N).

Concept E. Physical Geography stands alone in semantic space in the 1980 model and indicates a low rating on flexibility, a neutral rating on understandability (which decreased from the 1976 survey) but moderately highly valued. Concept I. The Tertiary Admissions Examination is clearly separated in semantic space from all other concepts and reveals low ratings on flexibility and understandability and is only moderately valued. Concept H. Contemporary World Problems is depicted in the 1980 model as being high on flexibility but low on understandability and least valued of all the concepts. This represented a considerable decline on the understandability and evaluation factors obtained in the 1976 survey.

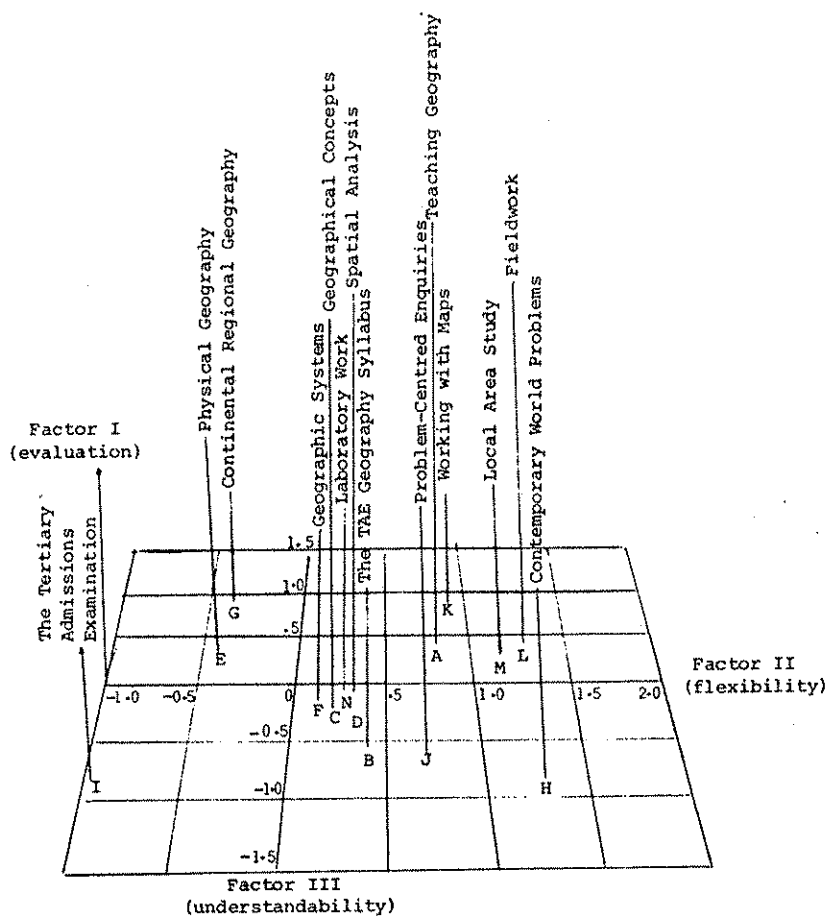


FIGURE 1: A Model of the Semantic Space of W.A. Geography Teachers (1980)

Discussion

In general terms, teachers employed to teach geography in government high school seem to have readily accepted and implemented the T.A.E. geography syllabus, which came into operation in 1974 and was first examined at year twelve level in 1975. The external examination appears to have been the major factor responsible for this acceptance, even though at the time of planning the syllabus, there was every indication that the external examination would be phased out. Personnel representing the Geographical Association of W.A. and the Education Department of W.A. were not able to stem the consolidation and entrenchment of the T.A.E. external examination.

These perceptions were largely supported by data from the questionnaire and semantic differential instruments which indicated that the majority of teachers' comments about the syllabus were positive and that these attitudes have been maintained over the four year period between 1976 and 1980. Despite minimal involvement by teachers in the development of the new syllabus and an extremely brief period for the dissemination of the new ideas and practices, resistance to it seems to have been at a very low level. Perhaps disenchantment with the previous syllabus or the beguiling flexibility of the new syllabus could have been contributing factors why teachers did not offer more substantial resistance.

But in specific details, the picture is not so clear, and certainly not so promising. Although the T.A.E. geography syllabus features student-initiated inquiry activities as its over-riding goal it is evident that teachers are not using inquiry/problem-solving as a major teaching mode. The questionnaire data revealed that inquiry activities are used with low/moderate frequency and that between 1976 and 1980 there has been a slight increase in teacher-directed, didactic methods. Results from the semantic differential also indicated that teachers rated problem-centred inquiry teaching as difficult and their ratings were even more marked in 1980 than in 1976.

There may be a number of reasons why inquiry activities are proving difficult for teachers to incorporate into their teaching. Elliott's work with the Ford T Project in the U.K. (Elliott and Adelman, 1975) has indicated the problems teachers have with inquiry teaching and the need to "enhance the teacher's awareness - his practical, his situational and his self-awareness - by putting him in the position of being able to monitor the consequences of his classroom actions." Bartlett (1980, 9), in his evaluation of trials of the new Queensland A.G.I. Geography syllabus, posited that teacher conceptualisations of inquiry was a major problem. The problem for geography teachers in Western Australia may be therefore a lack of skills, or incomplete understanding and conceptualisation of inquiry as a learning process.

Another reason might be simply a pragmatic one, namely the external written examination does not assess inquiry process skills and so there is no point in teachers spending time on this approach with their students. A variation of this, could be that the structure of the examination paper is such that inquiry process questions can be avoided and so teachers tend to ignore the inquiry mode.

The survey data was not able to provide details why the inquiry teaching mode is not commonly used by teachers. It appears to be an important issue for further research, but the information required to answer the question can only be acquired by detailed classroom observations and teacher interviews. Such instruments as Hall's (1974) "Levels of Use" (L.O.U.) and Concerns-Based (C.B.A.M) instruments are useful procedures which might be used to collect the necessary implementation details needed.

Teachers in the 1976 survey did refer to some problems in implementing the T.A.E. geography syllabus and it is interesting to note that a large number of these also appeared in the 1980 data. The questionnaire data revealed that teachers still appreciate the flexibility and freedom of the T.A.E. geography syllabus but this level of appreciation has waned over the four year period between 1976 and 1980. Teachers were even more concerned in 1980 about knowing the range and depth required for teaching specific topics and how to assist students lacking basic geographical skills.

Further teacher problems were revealed in the semantic differential data and these were related to specific concepts included in the syllabus. The teaching of physical geography emerged as a problem for many teachers. The typical undergraduate courses available at tertiary institutions within Western Australia have until recently not emphasised physical geography as a specialist area of study and the problem might be a reflection of teachers' lack of confidence about their background knowledge in the area. Then again, the undertaking of field studies to observe and record physical phenomena is difficult to organise when school timetables provide little flexibility and opportunities for it.

The teaching of contemporary world problems as a syllabus topic is a vestige of the original 1974 syllabus document. It has recently been removed and integrated within the remaining concept clusters. Perhaps the topic

epitomises flexibility at its best and at its worst. In examination papers between 1976-80, the questions presented on world problems often did not concur with the issues and details treated by teachers. The area was just too wide, diffuse and unmanageable for teachers to cover effectively with their students.

There were difficulties with their concepts too, such as spatial analysis, mapping and geographic systems, but it seems that an over-riding problem for teaching of these concepts and those listed above was the external examination, and the restrictions imposed by a three hour written paper. Although a supplementary syllabus amplification document was produced for teachers in 1978, this did not overcome misunderstandings about what was to be taught and how it was to be done. Teacher opportunities for carrying out local surveys and activities particularly relevant to their student population and community seem to have been considerably restricted by the scope and format of the present external examination.

Despite a flurry of activities by members of the Geographical Association of W.A. in the period 1975-1976, it seems that the reaction of members of this association over recent years has been to accept albeit reluctantly (and perhaps as dissonant adopters), the syllabus and its 100% external assessment for purposes of admittance to tertiary institutions. The question raised by Hill (1976) in the local journal of the Geographical Association of W.A. in 1976 -

"Is the new syllabus being regarded as a product, rather than the first stages of a process of curriculum reform?"

- did not appear to be answered or heeded by G.A.W.A. members in their subsequent activities. Neither did a call by Carter (1975, 1979) for open, informed and positive discussion and criticism of the new syllabus and the need to look at alternative syllabus approaches which made more provisions for the non-tertiary aspirants among the student population.

It appears that external T.A.E. examination will remain as the guardian of the geography syllabus in the foreseeable future. A recent empirical study of teacher receptivity to the T.A.E. and C.A.E. examinations (Waugh (1981, 34)) revealed that teachers attitudes in general to the T.A.E. system were very positive (84%) and that only 16% evaluated the system negatively. A further item in the questionnaire used in this study requested teacher reactions to their intended behaviour towards the T.A.E. system in the years 1981-1985. This revealed the following levels of support: praise 52%; support 18%; tolerate 17%; oppose 6%; resist 7% (Waugh 1981, 34-35).

Perhaps these figures sum up the attitude of teachers to the T.A.E. Geography examination. It might be concluded that the vast majority of teachers support the external examination for assessing the T.A.E. geography syllabus although there is a small number who grudgingly tolerate it. Since the syllabus was introduced in 1974, teachers have learnt to cope with it in that they have been able to develop the necessary skills and understandings in their students for them to perform relatively well in the written examination. The degree to which the fidelity of the syllabus has been maintained is problematic and requires detailed study of teachers in action. However, problems raised by teachers in the 1976 study and which reappeared in the 1980 study, indicate that there are important areas, such as the teaching of certain high order concepts and the overall inquiry mode of teaching, which are not being taught as intended by the initiators of the syllabus.

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