CHAPTER II

Review of Related Literature

Introduction

The purpose of the study is to describe the Stages of Concern (SoC) and Levels of Use (LoU) of selected Sixth Form Geography teachers from the First and Second Divisions of Sarawak, in the implementation of the new Geography curriculum innovation. The demographic variables of the study are gender, teaching experience, and the location of the school.

This section describes the review of literature that is related to the conduct of this study. It is divided into seven sections which includes Educational change, Models and strategies for educational change, Implementation studies, The teacher and curriculum implementation, The effect of demographic variables on implementation, Implementation studies in Malaysia, and Conceptual framework: The Concerns-Based Adoption Model.

Educational Change

One of the most fascinating fallacies of the emphasis in educational change in the 1960s was the suggestion that one could develop a "teacher proof" curriculum. It was assumed that the curriculum would be so up-to-date, so well field tested, and so appropriate that teachers could just plug it in and use it. As was discovered by many, teachers used these "teacher proof" materials in surprisingly varied ways.

Studies on curriculum change shows that change is a complex process where all its variables must be accounted for if it is to be meaningful and effective (Fullan and Pomfret, 1977). The failure of many curriculum innovations has led researchers to highlight the importance of understanding the implementation process. In reviewing the literature on curriculum implementation, it is noted that although many factors are involved, it is crucial to consider teachers who are the users of the curriculum innovation. Overall, it is the people involved that makes the difference in the success or failure of educational change – the style of the change facilitator, the interventions they make, and the characteristics of the teachers involved in the change process.

Models and Strategies for Educational Change

Studies on how educational change takes place in different settings have produced various models. Schon (1976) proposes two models, that is

(a) the centre-periphery model where the movement of the change is directed from the centre out to its eventual users, and

(b) the proliferation-of-centre model, designed as an extention of the centre-periphery model, to overcome any sources of failure found within it.

Havelock (1973) proposes three other models, that is

(a) the research and development model (R & D) where innovations are centrally conceived, initiated, incorporated and evaluated while the users remain passive;

(b)   the social-interaction model which emphasizes the usage of channels of communications to diffuse the innovation; and

(c)   the problem-solving model which focuses on the needs of the user who is seen as an active and not passive receiver.

All the above models have their own respective shortcomings. According to Nicholls (1983), both the R & D model and the centre-periphery model which are relatively similar, suffers from the problem of congruence, that is, the change may not match with the philosophy and ability of its users. In the case of the social model, there arises the problem of transferring the innovation from one setting to another. In the case of the problem-solving model where the innovations are school-based, the changes tend to be very minute and are rarely based on research.

In Malaysia, the R & D or centre-periphery model for change is used to provide an efficient and economic use of scarce resources and expertise to achieve national unity through centralized control (Azizah, 1987). However, as evidenced by studies done by Charlesworth (1975), Chew (1979), Azizah (1987) and Toh (1991), the curriculum innovations tend to suffer from the problem of congruence with its users. All these studies pointed out the dangers of merely introducing an innovation and then leaving the teachers to implement it.

Various writers have contended that innovation should be viewed as a process and not as a single event or product. Rogers and Shoemaker (1971) see innovation as a five stage process, namely, awareness, intent, evaluation, trial and adoption whereas the eight stages identified by Leithwood and Russell (1973) are,

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establishing the climate for change, initiating changes, establishing the organization for change, identifying problems and selecting goals, studying available solutions, piloting trials, adopting, adapting or rejecting, and field trials. The latter highlights the importance of considering the interaction between stages and individuals in the change process.

Maher and Illback (1983) used the acronym "DURABLE" to denote their seven-phased approach proposal, that is discussing, understanding, reinforcing, acquiring, building, learning, and evaluating. Each phase has a set of related activities.

All these stages in the change process can be compartmentalised into three main phases (Loucks and Zigarmi, 1981; Huberman and Miles, 1982; Loucks and Cox, 1984) which are, the initiation / adoption phase, the implementation phase, and the institutionalization phase.

Most of the early studies on change emphasized the adoption phase but it was quickly shifted to the implementation phase once it was discovered that most of the innovations introduced were either superficially implemented or not implemented at all. Various studies have shown that successful innovations are found where attention is paid to the implementation phase (Emrick and Peterson, 1978; Loucks and Melle, 1980; Louis and Rosenblum, 1981). But for long lasting effects to be achieved, the institutionalization phase (Gilmar, 1985) is very important and it was found that principals have a key role to play in this phase both in terms of instituting collegial help and staff development. Thus it is very important that strategies for educational change view innovation as a process and

take into account the various phases since at each phase, the organizations and individuals involved have different needs and concerns (Hall and Loucks, 1978; Huberman and miles, 1982; Loucks and Cox, 1984).

Implementation Studies

In reviewing the literature on curriculum implementations, Fullan and Pomfret (1977) have categorised implementation studies into either those that display the fidelity orientation, that is, studies which determine the extent to which innovations are used as intended (Leinhardt, 1975; Hall and Loucks, 1977) or those that are directed at studying the complexities of the change process itself. The latter include the Ford Teaching Project (Elliot and Adelman, 1974) and the Rand Studies (Berman and McLaughlin, 1977) which emphasized the importance of understanding implementation as an on-going process and that the users of the innovation are most important in the implementation process.

Implementation studies are important for several reasons. According to Fullan and Pomfret (1977), they are used for (a) documenting the features of the innovation, (b) identifying important variables associated with programme installation, and (c) determining which programme features are related to outcome measures.

Evaluation of implementation change

Most research on teacher change has focussed on changing teacher classroom behaviors in terms of instructional strategies and techniques. As the

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result, a body of knowledge, described as effective teaching practices has been developed and is considered generalizable across all content areas or academic subjects in the school curriculum (Witlock, 1986).

Very few studies have been done that focussed only on teacher implementation of a new curriculum, and this may be due in part to the problematic nature of separating curriculum from instruction. Shulman (1986) suggests that such separation is false and that studies that do not consider content as well as instruction are not useful to the practitioner.

Various approaches to implementation evaluations have been proposed. Alkin's model (1969) uses a summative evaluation on the data collected to determine the extent to which a programme is implemented. Another model, closely associated with the work of Stallings (1975), Leinhardt (1975), and Evans and Behrman (1977), requires programme developers to specify "key elements" of an innovation and it uses direct observation techniques to limit the outcome evaluations to classrooms in which these "key elements" are actually implemented. A third model, using structural equation model, was used by Churchman (1979) and Francq (1983) to measure the variation in teacher's adaption of an innovation and relating these variations to student outcomes.

Yet other studies have used teacher planning documents, such as lesson plans and teacher made handouts, along with teacher interviews, to determine the extent and implementation of various resource materials (Brown, 1988; McCutcheon, 1980). These studies find that teacher use of curriculum materials in planning and delivering lessons is a highly individualized process, despite efforts of school

districts to mandate use of particular materials (Clark, 1986; Hall and Hord, 1987; Thornton, 1989). Checklists have also been used to determine curriculum implementation. These check lists often consist of teacher behavior statements and curriculum content descriptions (Merrill and Wood, 1979).

Eisner (1988) studied four high schools in California through intense observation, or "following around", several teachers and students in the school. This method (ethnographic study) though effective in providing a more accurate description of the various factors in the implementation change process, is very time consuming and can only focus on small groups of people, thus bringing into question the generalizability of the researcher's final results. In addition, the fact that the researcher is always present, through observation, or ask questions which may force participants to think about issues they would not have considered, may cause the final results to deviate from a norm (Fetterman, 1989).

From the above, it can be seen that evaluation studies on implementation change are crucial. Teachers should not to be left alone in the implementation process of an innovation. In fact, such evaluation studies need to be carried out from time to time to assess the extent of the use of the innovation by the teachers.

The teacher and curriculum implementation.

In curriculum implementation, many individuals are involved. At the classroom level, teachers are, without doubt, the paramount players (Crandall, 1983). They are the actual users of the innovation. Purkey and Smith, (1982),

argued that the support and commitment of teachers are crucial to any change effort in schools and failure to understand them in the change process can result in the failure of implementation. Waugh and Punch (1987) also state that curriculum implementation efforts are most influenced by teachers' receptivity to change. It identifies several teacher variables that affected this receptivity, including the teacher's educational philosophy, their attitudes and feelings toward the system before the change, their personal fears and uncertainties about the effect the change will have on their own careers, their expectations about the results the change will bring about and the level of support they think they will receive from administrators and others in the school system.

Most studies generally tend to assume that once an innovation is adequately and explicitly described, and training and support activities are provided, implementation will occur. However, there is a need to consider the maturational levels of teachers and this has been emphasized in the literature on curriculum change and implementation (Gates et al., 1976; Cawetti, 1976; Loucks and Lieberman, 1983). It takes time, appropriate training and support activities for the teachers to "grow" and develop in their knowledge and skills in the use of an innovation. Hall and Loucks (1977) have argued that many evaluation studies have failed to show significant findings on teacher change because of this failure to recognize the concept of developmentalism in teachers.

An appropriate model for studying teachers in the implementation process is the Concerns-Based Adoption Model (CBAM). It was developed at the Research and Developmental Center for Teacher Education in the University of

Texas by a team of researchers led by Gene Hall and Susan Loucks. Through two years (1974- 1976) of large scale longitudinal study, they have developed, validated and refined the concepts and tools of this model for the measurement of innovation implementation in the classroom. This model has three diagnostic dimensions focussing upon three aspects of change adoption and implementation: teacher levels of concern about the innovation, teacher levels of use of the innovation and the innovation configuration, a series of operational definitions about the innovation.

This model views change as a process, experienced by individuals who seek to or are being asked to change their behaviors in particular ways. It hypothesizes that teachers develop along two key dimensions in the change process - in their feelings (Stages of Concern or SoC) and in their behavior as they implement an innovation (Levels of Use or LoU). These two dimensions have been used successfully to monitor curriculum change implementation efforts and to assess the effectiveness of school district staff development programs designed to promote the change in other studies (McAtee and Punch, 1979; Clark, 1986; Hall and Hord, 1987; King, 1987; Hopkins, 1990).

A third dimension, the innovation configuration, has been developed by Hall and Loucks (1978). It consists of a series of descriptive statements about the innovation that has been developed by the innovation designers. The innovation configurations of an innovation, once identified, will help to assess the use and non-use of an innovation by the adopter. Thus, overall, this change model can help indicate what types of interventions may be necessary to ensure that change

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takes place (Hall and Hord, 1987), thus providing facilitators a guiding framework within which to plan support activities and other interventions.

Identifying Teachers' Concerns and Resistance towards change

Teachers have tended to shrink from the changes in the curriculum which are necessary due to the enormous social, environmental and economic changes. Why is it so? No doubt, conservatism plays a part. By and large, people like to keep to secure, familiar patterns of behavior, and teachers are no exception. Inertia in teaching is far greater than is often realized.

Rutherford (1986) studied how teachers respond to the implementation of educational innovations and concluded that in many cases, teachers are most often the recipients rather than the initiators of any change in their classrooms and are therefore resistant to innovations. In many cases, teachers are convinced that the change will soon fade away as other fads have or questioning the value of the change.

Intervention effects.

Hall and others at the University of Texas did an in-depth study of the implementation of a new science curriculum in nine elementary school. They found that the degree of implementation of the innovation is different in different schools because of the actions and concerns of the principal (Hall, Hord, Hulling, Rutherford and Stiegelbauer, 1983). Trohoski (1984) studied the effects of principals' action as change facilitators on teachers and found that principals

affected positively teachers' concerns about an innovation and their levels of use of the innovation.

Using the Levels of Use (LoU) as indication of teachers' mastery or sophistication in use of an innovation, Loucks (1985) studied the role of teacher incentives and rewards in implementing a technological innovation. She found that intensive, long-term implementation effort, and adequate, on-going training and support are essential up to the point when teachers have mastered an innovation and incorporated it into their teaching. Thus it is likely that changes will be made and maintained if a teacher has incentives, rewards and sufficient supports (Crandall, et al., 1983).

A study which focussed on the importance of intervention measures to reduce the informational and personal concerns of teachers was done by Pedron (1987). He found that interventions geared towards management concern were most effective in reducing concerns. Hall and Hord (1987) found in their studies that successful use of curriculum innovation also required interventions at crucial intervals. Change can be introduced to a wide audience in a large meeting but can only be sustained on an individual case by case level.

Lockard (1986) studied the effects of using the coaching approach in a laboratory - based elementary science program to change individual teacher's stages of concern and behavior about an innovation. He found that coaching enhances the degree to which teachers actually use or implement the program in the classroom. It also has a positive effect on teacher concerns about teaching the program and on the attitudes of students about learning science. However, some

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studies (Joyce and Showers, 1988; Hopkins, 1990) also revealed that peer coaching and other training follow - up methods that include teacher observation are ineffective if the persons involved do not have a clear understanding of program goals, objectives and procedures, or if the teachers believed that punitive outcomes were possible if any criticism was made.

The Effect of Demographic Variables on Implementation

Hall, George and Rutherford (1977) studied the relationship between teacher concerns, SoC and demographic variables such as teaching experience, academic and professional qualifications, age and gender and they did not find any outstanding relationship between these variables and the concerns data. Subsequent studies by Johnson (1984), Poulos (1984), Penn (1985), and Suksangsri (1987) have consistently shown that demographic variables such as age, sex, teaching experience and academic qualification have no effect on teachers' stages of concern.

However, studies by Foute (1982) and Brown (1984) found that teachers' developmental concerns were related to their years of teaching experience Brown's study found this relationship true only among female teache Sungkatavat (1984), in her study of a Biology program implementation, found experienced teachers have higher LoU, teachers with higher degrees have LoU and that both female and teachers over forty years of age operati their uses of the innovation closer to the developer's ideal than male an teachers.

Although the relationship between teacher concerns and teaching experience does not seem to be consistent, experience with the innovation has been consistently found to be positively related to teachers' concerns. This confirms the CBAM's (Concerns-Based Adoption Model) hypothesis of developmental concerns and use of the innovation. Thus, the CBAM can be viewed as a very useful framework for gathering information that can be used not only to help us to understand teachers in the implementation process but also as a basis for planning staff development programmes. In addition, the CBAM can be used to monitor teachers' progress in the implementation process.

Implementation Studies in Malaysia

There are very few curriculum implementation studies in Malaysia. The first by Charlesworth (1975) was on the implementation of the Integrated Science programme and he identified a list of barriers to teachers' implementation of the programme. These include a lack of clarity and materials on the programme, teachers' lack of experience, knowledge, skills and motivation and other obstacles that relate to traditional student-teacher relationships, student background, examination tradition and management of educational change. He concluded that it is vital to look into the needs of teachers in the implementation of this science innovation.

Chew (1979) proposed a strategy for curriculum change in his study of the various curricular changes that have occurred in Malaysia. His study revealed that the top-down process of innovation movement in Malaysia tends to overlook the

realities of the classroom. He proposed a three tier model which is relatively similar to Havelock's linkage model where a linkage system is used to channel information and action between the innovation developer and the users. His model also incorporates six stages of curriculum development, ranging from promoting awareness of the innovation to sustainment of change.

Napsiah (1983) studied the role of key teachers in the implementation of a new History curriculum and found that both key teachers and the state organized in-service courses were equally ineffective in implementing the changes in methods of instruction although both were able to deliver the new curriculum content.

In her study of the implementation of the new primary school curriculum or KBSR (Kurikulum Baru Sekolah Rendah), Siti Hawa (1986) describes and explains the change process involved in it and emphasizes the need for more professional development of teachers in Malaysia. In another study, Azizah (1987) investigated the KBSR program on the proposition that the conditions in Malaysia were not conducive to such a change. She found that the crash orientation programmes for KBSR teachers were ineffective in implementing the new child-centred teaching approach in the primary school. Her study emphasized the need for professional development of teachers and suggested both short-term remedial measures such as recalling teachers for refresher courses and long-term plans such as producing graduate teachers for primary schools.

Toh (1991) studied the SoC and LoU of three groups of Living Skills teachers in the implementation of the Commerce and Entrepreneurship component of the Living Skills programme and found that (a) teachers' "self" concerns

(concerns about mastering the innovation) have yet to be resolved and teachers are not progressing in the stages as hypothesized in the CBAM, and (b) about 90% of the teachers were found to be at LoU III (mechanical day-to-day use of the innovation) out of eight levels in their use of the curriculum innovation. Based upon the implications of these findings, the study recommended that intervention activities, organizational arrangements and the use of the CBAM as a model for staff development be introduced to facilitate the implementation of the innovation.

In his study, Tan Ming Tang (1995) described the SoC and LoU of 40 Year Four Science teachers from Kajang, Selangor in the implementation of the new Science curriculum innovation. Descriptive statistics of Tan's sample revealed that the new users' SoC were at Stages 0 (83.00%) and 1 (79.47%). As for the experienced users, their two highest concerns are at Stages 1 (81.95%) and 2 (77.62%), followed by Stages 0 (75.10%) and 3 (71.19). These findings confirmed that teachers implementing the primary school Science program had not been able to move beyond Stages 1 and 2 in their concerns about the innovation. The investigation on teachers' levels of use revealed that the highest frequency (72.0%) of teachers were at LoU III (Mechanical). This means that these teachers were in a state where most effort was focussed on the short-term, day-to-day use of the innovation, with little time for reflection. His study also found out that more experienced teachers have higher LoU. Tan recommeded three ways to improve the implementation of the innovation. They are : (a) intervention activities to facilitate teachers' progress, (b) suggestions on improving the organizational

arrangements to facilitate the change effort, and (c) discussing the use of CBAM as a model for curriculum renewal in Malaysia.

The above studies clearly show the need to study the implementation process of a new curriculum innovation. The needs, fears, anxieties, the philosophy and ability of the users as well as the relevance of the various aids and activities need to be looked into and addressed for successful and meaningful implementation.

Conceptual Framwork: The Concerns – Based Adoption Model (CBAM)

The CBAM has been designed to describe change as it affects individuals and to prompt more successful change efforts. CBAM views the teacher as the focal point in school improvement efforts, yet also acknowledges social and organizational influences. It was developed over the past 30 years through the Research and Development Center at the University of Texas in Austin and identifies seven stages of concern involved in implementing an innovation. Initially, users will voice questions relating to what the innovation actually demands of them and how it will affect them personally. After these "self" concerns have been resolved, users will become more concerned about the "tasks" related to using the innovation. Once these concerns are resolved, users would tend to be concerned with the "impact" of the innovation on pupils. The framework of the CBAM is based upon several assumptions which have been described by Leary (1983). These are:

(1)   Change is not an event but a process occurring overtime that is achieved incrementally and developmentally.

(2)   Individuals involved in change go through stages in their perceptions, and feelings about the innovation, as well as their skill and sophistication in using the innovation.

(3)   Change is a highly personal experience. The personal dimension of change is often more critical to the success or failure of the change process than either the organizational or technological dimensions.

(4)   The individual is the final point in the change process. Institutions cannot change until the individuals within them change.

(5)   It is possible to acquire reliable and valid information about individual behavior and concerns relative to an innovation.

(6)   It is possible to facilitate the change process by means of interventions targeted to the concerns and behavior of individuals involved in the process.

(7)   The change is appropriate, that is, it is judged to be positive and have potential for positive outcomes with the users and their clients.

(8)   The staff developers and other change facilitators need to work in an adaptive yet systematic way. They need to stay in constant touch with the progress of individuals within the larger context of the total organizations that is supporting the change.

(9)   To deliver relevant and supportive in-service teacher training, change facilitators need to diagnose where their clients are in the change process and target their intervention towards the diagnosed needs.

(10)   Full description of the intervention in operation is a key variable. There must be a full description of what the innovation entails when it is fully in use.

There are two primary systems in the CBAM, that is, the resource system and the user system. During the initial stage, the primary role of the resource system is to equip users with the necessary tools to become a problem solving system which will eventually become independent of the resource system. Interactions between the two primary systems occur through a third temporary system, called the collaborative adoption system (Figure 1). According to Hall et al. (1973), the three systems create the structure through which "a series of hierarchically ordered decisions related to the sequential phase of the adoption process is made possible". There are two general kinds of interactions flowing between the user and the resource systems :

(i)   Information - data concerning the user's needs, capabilities, concerns and usage of the innovation.

(ii)   Action - appropriate responses from the resource system after processing the information from the user system.

The collaborative system is only temporary and ceases to operate when the user system is able to carry on the implementation by itself, independent of the resource system.

USER SYSTEM COLLABORATIVE RESOURCE
       ADOPTION   SYSTEM
       SYSTEM
       (LINKAGE
       CHANNELS)

Anaysis of   Information   Innovation
institutional needs Needs   development
and analysis of Capabilities
institutional   Concerns   Training
capabilities   Usage   system
            development

Resolution of
concerns

Progress in usage Action: Diagnosis
and readiness for Probing for and
use   Concerns, evaluation
       Orientation'
       Consultation
       and
       Treatment. Action and
Progress in stages   treatment
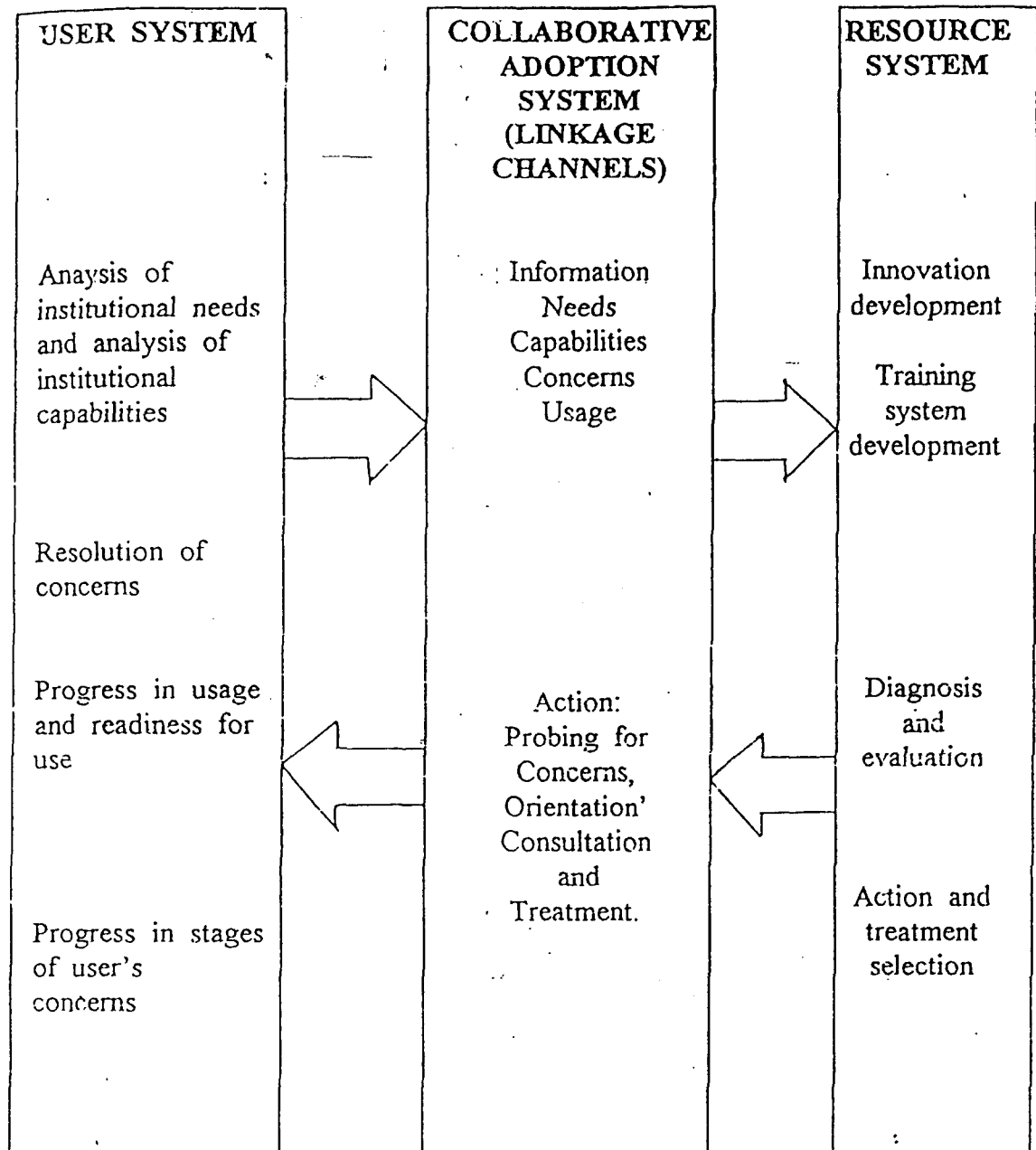of user's   selection
concerns

Figure 1. Conceptual Structure and Functional Process
Organization of CBAM Requirements

Source: Hall, G.E., Wallace, R.C. and Dossett, W.F. (1973). *A Developmental Conceptualization of the Adoption Process within Educational Institutions.* Austin, University of Texas: R & D Centre for Teacher Education.

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Two key dimensions are apparent in this model:

(a)   the affective dimension - teacher's concerns about the innovation; and

(b)   the behavioral dimension - teacher's skills and sophistication in the use of the innovation.

Stages of Concerns

Concerns are the feelings, attitudes, thoughts, or reactions an individual has related to an innovation or some new idea, practice, program, or process. The work of Frances Fuller (1969) focussed on the concerns of teachers-in-training as they progressed from early experiences in pre-service teacher education programs to being experienced in-service teachers. Fuller labeled this sequence of teacher concerns as unrelated, self, task and impact. Her work is the base upon which Stages of Concerns were built.

An early result of CBAM research was the realization that not only do new teachers go through a sequence of concerns about teaching, but all teachers - and most probably all individuals - faced with a new situation have concerns that are identifiable and developmental and are similar to those documented by Fuller. From this research on change, seven Stages of Concern about an innovation have been identified. (Table 1)

The Stages of Concern (SoC) of teachers (Hall and Rutherford, 1976) about an innovation are described as progressing along a continuum, from concerns about self (Stages 1 and 2), "In what ways will I be affected by this innovation?" to concerns related to teaching task (Stage 3), "How can I make this innovation

Table 1. Stages of Concerns About the Innovation.

No	Stages Of Concern	Definitions
6	REFOCUSING	The focus is on exploration of more universal benefits from the innovation, including the possibility of major changes or replacement with a more powerful alternative. Individual has define ideas about alternatives to the proposed or existing form of the innovation.
5	COLLABORATION	The focus is on coordination and cooperation with others regarding use of the innovation.
4	CONSEQUENCE	Attention focuses on impact of the innovation on student in his/her immediate sphere of influence. The focus is on relevance of the innovation for students, evaluation of student outcomes, including performance, competencies, and changes needed to increase student outcomes.
3	MANAGEMENT	Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organizing, managing, scheduling and time demands are utmost.
2	PERSONAL	Individual is uncertain about the demands of the innovation, his/her inadequacy to meet those demands, and his/her role with the innovation. This includes analysis of his/her role in relation to the reward structure of the organization, decision making, and consideration of potential conflicts with existing structures or personal commitment Financial or status implications of the. program for self and colleagues may also be reflected.
1	INFORMATIONAL	A general awareness of the innovation and interest in learning more detail about it is indicated. The person seems to be unworried about himself/herself in relation to the innovation. She/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects and requirements for use.
0	AWARENESS	Little concern about or involvement with the innovation is indicated.

Source: Hall, G.E., George, A.A. and Rutherford, W.J. (1977). *Measuring Stages of Concern about the Innovation: A manual for use of the SoC Questionnaire.* Austin, University of Texas: R & D Centre for Teacher Education.

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work ?" and then to concerns for impact on students (Stages 4, 5 and 6), "How will using this innovation affect my students ?" (Table 2).

Individuals experience a variety of concerns at any one point in time. However, the degree of intensity of different concerns about an innovation will vary depending on the individual's knowledge and experience. Whether the person is using or not using, whether he or she is preparing for use, has just begun use, or is highly skilled with the innovation, will contribute to the relative intensity of different concerns.

Table 2. Typical Expressions of Concern About the Innovation

No.	Stages of Concern	Expressions of Concern
6.	REFOCUSSING	I have some ideas about something that would work even better.
5.	COLLABORATION	I am concern about relating what I am doing with what other instructors are doing.
4.	CONSEQUENCE	How is my use affecting kids?
3.	MANAGEMENT	I seem to be spending all my time in getting material ready.
2.	PERSONAL	How will using it affect me?
1.	INFORMATIONAL	I would like to know more about it.
0.	AWARENESS	I am not concerned about it (the innovation).

Source: Hall, G.E., George, A.A. and Rutherford, W.J. (1977). *Measuring Stages of Concern about the Innovation: A manual for use of the SoC Questionnaire.* Austin, University of Texas: R & D Centre for Teacher Education.

Thus, teachers seldom have concerns at only one stage. Figure 2 illustrates a general sequence that concerns appear to follow. Teachers who are non-users of an innovation generally have concerns high on Stages 0, 1 and 2. They are more concerned about gaining information (Stage 1) or how using the innovation will affect them personally (Stage 2). As they begin to use an innovation, Stage 3 (Management) concerns become higher and more intense. And when teachers become experienced and skilled with an innovation, it is possible for concerns at Stages 4, 5 and 6 to become more intense with a decrease in Stages 0, 1, 2 and 3 (Hall, George and Rutherford, 1977). Thus with continued use, practices become more routine and the teacher is able to provide more effective instruction to the learners and to integrate what he is doing with that of other teachers. What a teacher does as he becomes more attuned to the use of an innovation, is described behaviorally in the CBAM.

Levels of Use of the CBAM

A second concept which provides a basis for designing relevant learning activities, in-service or staff development programs is Levels of Use (LoU). This dimension describes how performance changes as the individual becomes more familiar with an innovation and more skillful in using it. Eight distinct Levels of Use have been identified (Loucks, Newlove, and Hall, 1975). The eight levels of use (Table 3) are hierarchial and represent the developmental growth of the individual user in acquiring new skills and varying use of the innovation. Each level encompasses a range of behavior which is described in Appendix B.
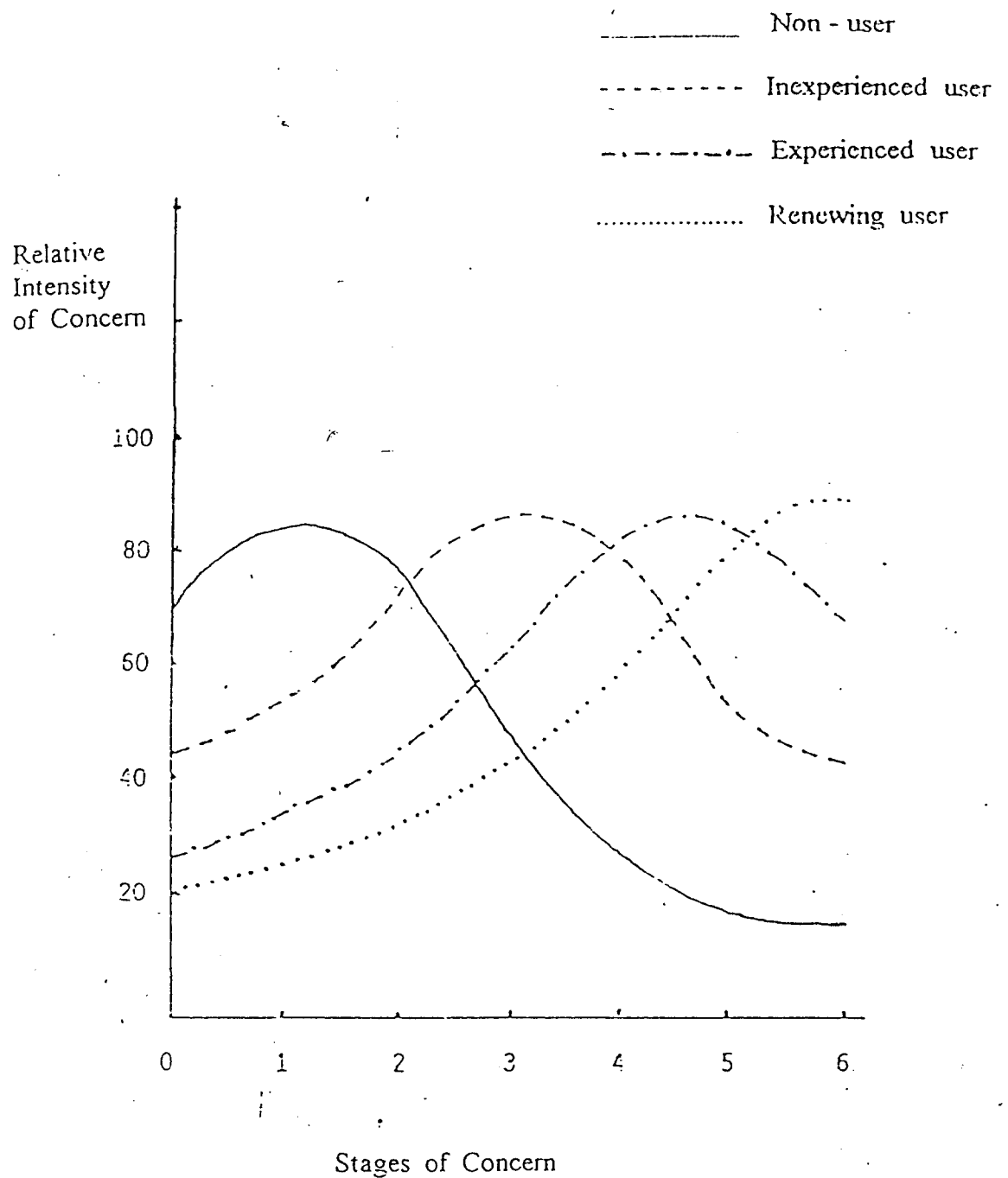
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Figure 2. Hypothesized Development of Stages of Concern

Source: Hall, G.E., George, A.A. and Rutherford, W.J. (1977). *Measuring Stages of Concern about the Innovation: A manual for use of the SoC Questionnaire.* Austin, University of Texas: R & D Centre for Teacher Education.

Table 3. Levels of Use of the CBAM

Levels	Range of Behavior
0	(Non-use) where the teacher has no involvement with the innovation.
I	(Orientation) where the teacher is acquiring information about the innovation.
II	(Preparation) where the teacher is preparing for first use of the innovation.
III	(Mechanical) where the user focuses most effort on day-to-day use of the innovation.
IVa	(Routine) where few, if any changes are being made in on-going use.
IVb	(Refinement) where user varies use of the innovation to increase impact on students.
V	(Integration) where user works collectively with others in using the innovation.
VI	(Renewal) where user seeks major modifications to the innovation.

Source: Loucks, S.F., Newlove, B. And Hall, G.E. (1975). *Measuring Levels of Use of the Innovation: A Manual for Trainers, Interviewers and Raters.* Austin, University of Texas: R & D Centre for Teacher Education.

Rutherford (1977) confirmed that a relationship existed between LoU and SoC. They found that a change in LoU is anticipated by a change in SoC. However, LoU does not change as rapidly as SoC. Although changes in concerns may be indicative of a change in LoU, a time cannot be specified for these changes which have occurred (Leary, 1983).

Beside using the affective and behavioral dimensions in assessing use or non-use of an innovation, a third dimension, innovation configuration, has been developed by Hall and Loucks (1978). Innovation configurations are "the operational patterns of the innovation that result from selection and use of different innovation component variations". Earlier studies by Evans and Scheffler (1974), and Emrick and Peterson (1978) have found that adopters tend to implement only selected parts of the innovation rather than the entire innovation itself. Furthermore, the innovation is modified and adapted to local conditions, a process which Berman and McLaughlin (1977) termed as "mutual adaption".

The innovation configurations of an innovation, once identified, will help to assess the use and non-use of an innovation by the adopter. The procedure for identifying innovation configuration involves asking developers and facilitators for essential innovation components, followed by interviews and observations of users to determine the configurations that are acceptable to the developers. In the Malaysian context of this study where the innovation is mandated and the components explicitly described, use or non-use is determined by these components.

As summary, Hall (1974) listed six important distinguishing characteristics of CBAM to show why it is of such practical value and interests to researchers.

These characteristics are:

(1)   Focusing on adoption of innovations by educational institutions rather than innovation-free change.

(2)   Having the individual be the unit of analysis rather than groups or the entire user system.

(3)   Viewing innovation adoption as a developmental process with definable, predictable and measurable levels and stages.

(4)   Hypothesising that use of the innovation progresses through a series of definable, predictable, and measurable levels.

(5)   Hypothesising that individual user concerns about the innovation progresses through a series of definable, predictable and measurable stages.

(6)   Hypothesising that there is a corresponding relationship between a user's concern about the innovation and how the innovation is used.

Thus, from the above, it can be seen that while the CBAM acknowledges social and organizational influences, it also views educational change as a complex process which affects individuals. Individuals involved in change "grow" in stages in their feelings and concerns about the innovation. They also go through stages in their skills and behaviors in using the innovation. Hence, CBAM regards the individual teacher as the focal point in the implementation process of educational change. It is difficult for institutions to change if the individuals do not change from within.