

**THE CONCERNS AND LEVELS OF USE OF SIXTH FORM GEOGRAPHY  
TEACHERS IN IMPLEMENTING THE NEW SIXTH FORM  
GEOGRAPHY CURRICULUM**

by  
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**ABSTRACT**

*The purpose of this study was to describe the Stages of Concern (SoC) and Levels of Use (LoU) of 30 Sixth Form Geography teachers (75% of population) from the First and Second Divisions of Sarawak, in the implementation of the new Geography curriculum innovation. The demographic variables of gender, years of teaching experience and the location of the school were also studied. Data was collected by means of the survey methodology. The results showed that these teachers have unresolved high self concerns, management concern and impact concern. This profile resembled both that of a non-user and a beginner user. Male teachers were found to have higher intensity in their SoC. Data on teachers' LoU revealed that their highest frequency were at LoU V. This indicates that the teachers are collaborating with each other in the use of the innovation for the purpose of achieving greater impact. More experienced teachers were also found to have higher LoU.*

**INTRODUCTION**

**Sixth Form Geography Curriculum Change and Implementation**

The new Sixth Form Geography curriculum was implemented by the Education Ministry of Malaysia, effective from May 1996, replacing the old Geography curriculum which was found to be outdated and thus not relevant for today's society. This new curriculum was developed based on four core components of Geography studies: the physical environment as man's habitat; human activities in the habitat; the dynamics, uniqueness and universality of man's habitat; and, the importance of geographical skills for gathering, analyzing, interpreting, explaining, presenting and synthesizing information and data.

The new curriculum combines these four components and looks into the interdependence between them. Thus, the new curriculum stresses on the dynamics of human relationship and interaction with the natural environment. This integrated approach in the new curriculum is seen as more relevant for today's society in view of the many changes in the natural environment such as global warming, deforestation, environmental pollution, population explosion, poverty, underdevelopment, and many others. It is hoped that the new curriculum will not only impart skills to synthesize basic geographical

concepts but also help to create awareness among students of the importance of the environment as a system, therefore preparing them to be better future administrators, planners and decision makers.

In reviewing the literature on curriculum implementation, the importance of understanding implementation as an on-going process and that the users of the innovation (teachers) are the most important in the implementation process has been emphasized by many studies. Among them are the Ford Teaching Project (Elliot and Adelman, 1974) and the Rand Studies (Berman and McLaughlin, 1977). It is therefore important to know where teachers stand in this developmental process in terms of both their expressed concerns and their classroom behavior so that appropriate support and services can be undertaken to promote the successful implementation of this new innovation.

### **Purpose of the Study**

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 as a whole; and also according to their demographic variables of gender, teaching experience and the location of school.

### **Research Questions**

Specifically, the study addresses the following questions:

1. What are the concerns and the levels of use of Sixth Form Geography teachers in the implementation of the new Geography curriculum innovation?
2. What are the concerns and the levels of use of Sixth Form Geography teachers according to the variables of gender, teaching experience, and the location of the school in the implementation of the new Geography curriculum innovation?

### **Significance of the Study**

It is important to know where Sixth Form Geography teachers stand in the process of change in terms of both their expressed concerns and their classroom behavior. Studies pertaining to Sixth Form Geography teachers in Malaysia have yet to be undertaken. Thus it is hoped that the findings of this study will contribute to a better understanding of the concerns and behaviors of Sixth Form Geography teachers so that relevant assistance such as staff development courses, coaching, provision of materials, etc. can be provided by the Ministry of Education of Malaysia to aid them in the implementation process.

### **Limitations of the Study**

This study was confined to the Sixth Form Geography teachers in the First and Second Divisions of Sarawak. But there is no reason to suggest that teachers from the other divisions in the state of Sarawak are different from that of these two selected divisions since all these teachers have received the

same in-service training program from the Sarawak State Education Department. Thus, the findings of this study can be generalized to all Sixth Form Geography teachers in the state of Sarawak.

Also, teachers' concerns and behavior in the implementation of the new Sixth Form Geography curriculum are studied at a given period of time. As a result, individual differences as they occur over time are not indicated. For such a purpose, a longitudinal study over a period of time would have been more appropriate.

### **Definition of Terms**

The key terms involved in this study, as listed below, are most appropriate for the context of this study only. These are as follows:

- (1) Stages of Concern (SoC): Describes the concerns or feelings that individuals experience with regard to the innovation. It has seven stages: awareness, informational, personal, management, consequence, collaboration and refocusing.
- (2) Levels of Use (LoU): Describes individuals' behaviors as they experience the process of change. It refers to the eight different ways an innovation is used by individuals and these are: non-use, orientation, preparation, mechanical, routine, refinement, integration and renewal.
- (3) The integrated approach stresses on the dynamics of human relationship and interaction with the natural environment. Thus its dual functions are to impart skills for synthesizing basic geographical concepts and to help create awareness among students of the importance of the environment as a system.

## **REVIEW OF RELATED LITERATURE**

### **The teacher and curriculum implementation**

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. 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, will not be explored in this study.

### **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 teachers. Sungkatavat (1984), in her study of a Biology program implementation, found that experienced teachers have higher LoU, teachers with higher degrees have higher LoU and that both female and teachers over forty years of age operationalized their uses of the innovation closer to the developer's ideal than male and younger 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.

## **METHODOLOGY**

### **Research Design**

A survey methodology employing a questionnaire and an interview are used to collect data for this study since it requires the descriptions of the concerns and Levels of Use of Sixth Form Geography teachers in implementing the new Sixth Form Geography curriculum. The survey is cross-sectional since data is

to be collected at a point in time although the survey covers a period of six weeks.

### **Population and Sample**

The population studied consists of all the Sixth Form Geography teachers from the First and Second Divisions of Sarawak. The population is divided into 2 groups according to their number of years of teaching experience, that is, (a) less than 10 years, and (b) 10 years and above. By using the technique of random sampling, about 75% of the total number of individuals in each group is drawn randomly to represent the study sample.

### **Instrumentation**

Data on teachers' concerns and their background are collected by means of the Stages of Concern Questionnaire (SoCQ) administered to all the 30 teachers who constitute the sample of the study. In addition, an interview schedule entitled "Level of Use Interview Protocol" (LoUIP) is used to assess teachers' LoU. Two visits were made to each of the respondents during the month of June, 2002. The first visit was to administer the SoC Questionnaire while the second visit was to conduct the LoU interview.

The Stages of Concern Questionnaire (SoCQ), developed by Hall and Rutherford (1976) at the University of Texas, was used to collect data on the seven stages of concern related to the new Geography curriculum innovation. Each of the 35 statements in the SoCQ expresses a certain concern about the innovation. Respondents indicate the degree to which each concern is reflected of their own position by circling the appropriate number on a Likert-type scale ranging from "0" to "7". High intensity of concern is indicated by high numbers and vice-versa. Circling of a "0" is indicative of a concern completely irrelevant to the teachers involved.

Each of the seven stages of concern is identified and measured by five items respectively as shown below:

Stages of Concern	Item Numbers
Awareness	3, 12, 21, 23, 30
Informational	6, 14, 15, 26, 35
Personal	7, 13, 17, 28, 33
Management	4, 8, 16, 25, 34
Consequence	1, 11, 19, 24, 32
Collaboration	5, 10, 18, 27, 29
Refocusing	2, 9, 20, 22, 31

In several cross-sectional and longitudinal studies of 11 different educational innovations, Hall, et al., (1977) found that the alpha coefficients of internal consistency for each of the seven stages of concern computed from data gathered from a sample of 830 teachers and professors in a two-year longitudinal study by the developers of the instrument ranged from 0.64 to 0.83. Test-retest correlations computed on the basis of 132 completed "retest" data in the same study range from 0.65 to 0.86.

At about the same time, the Levels of Use Interview Protocol (LoUIP) was developed by Gene Hall and others at the University of Texas at Austin Research and Developmental Center. The LoUIP was developed after a literature review, item creation and sorting, and field tests, which showed a 0.98 correlation between interview rating data and actual teacher observation. The purpose of the LoU interview is to collect sufficient amount of data from the innovation users in order to assign a LoU for each of the users. The reliability of the LoU interview schedule (coefficients ranging from 0.87 to 0.96) has been verified by the developers in both cross-sectional and longitudinal studies in schools and universities (Loucks, 1976; Hall and Loucks, 1977; Rutherford, 1977). It was found that rating could be done by the interviewer immediately after the interview since the reliability was consistently high (Loucks, 1976).

### **Data Analysis**

Several techniques are used to analyze the data gathered on teachers' SoC and LoU. First, descriptive statistics using mean percentile scores and their standard deviations are used to describe the concerns of the (a) sample teachers as a whole, (b) the various groups categorized in terms of the demographics of gender, teaching experience and the location of the school in using the new innovation.

Secondly, frequency counts and percentages are used to aggregate teachers according to the different levels of use. Based upon the frequency counts and percentages, description of their levels of use are made of the sample as a whole and also of groups of teachers categorized in terms of the demographics variables of gender, teaching experience and the location of the school in using the new innovation.

## **RESULTS OF THE STUDY**

### **Research Question 1:**

What are the concerns and the levels of use of Sixth Form Geography teachers in the implementation of the new Geography curriculum innovation?

The percentile scores of the total sample for the seven SoC were examined in terms of their means (*M*) and standard deviations (*SD*). The mean percentile scores and the standard deviations of the total sample for the seven SoC are presented in Table 1 below.

Table 1: Mean and Standard Deviation of SoC Percentile Scores for the Total Sample of Teachers

Stages of Concern	<i>M</i>	<i>SD</i>
0	70.27	21.93
1	75.33	13.83
2	77.53	19.57
3	70.17	23.16
4	53.53	21.56
5	67.07	21.60
6	75.03	20.39

The results in Table 1 indicate that of all the stages of concern, Stage 2 (Personal) concern of the total sample is most intense. A high Stage 2 score indicates intense concerns about ego-oriented questions and uncertainties about the innovation. Anxiety about status, reward and potential or real effects of the innovation are of high concern to the teachers. These concerns reflect uneasiness regarding the innovation. The second highest stage of concern for the total sample is Stage 1 (Informational) which indicates intense concerns about what the innovation entails. The teachers are interested in having more descriptive information about the innovation. The next highest stage of concern is Stage 6 (Refocusing) which indicates that the teachers are exploring the possibility of changes or replacement to supplement the existing innovation. It shows that the teachers are developing some ideas and alternatives to the existing innovation for a greater impact.

Figure 1: Group Profile of SoC of Teacher Sample

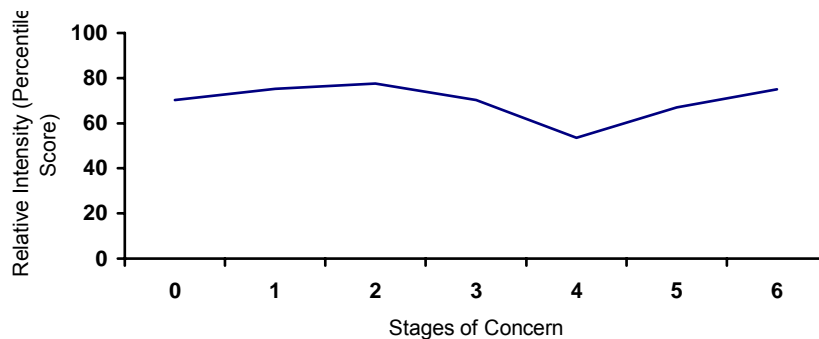


Figure 1 shows the group profile of the whole sample. The profile already indicates that the teachers have high stages 2, 1, 6, 0, 3 and 5 concerns and low concern for Stage 4. This profile resembles both that of a non-user (high Stages 0, 1 and 2) and a beginner user (high Stage 3).

Table 2: Percentage and Frequency distribution of Teachers' LoU

	Levels of Use (LoU)							
	0	I	II	III	IVa	IVb	V	VI
Frequency	0	0	0	0	0	5	13	12
Percentage	0.00	0.00	0.00	0.00	0.00	16.67	43.33	40.00

As for the results of the analysis of data on teachers' LoU, the overall percentage and frequency are shown in Table 2. For the biggest group of teachers (43.33%) assessed at LoU V, they expressed the need to collaborate and cooperate with other teachers for the purpose of achieving greater impact. This need was generated because of the lack of text books and reference books available on the market and in the school libraries. Thus, these teachers felt the need to share resources especially for up to date data and information. The topic of fieldwork also posed considerable difficulties to the teachers as most of them did not know exactly how to go about teaching it. Most of them felt inadequate to teach the necessary geographical skills for fieldwork. Collaboration at zonal level was carried out at least once a semester to enable teachers to share resources, information and experience. Other informal meetings were also carried out among smaller groups of teachers on their own initiative.

The group of teachers who were assessed at LoU VI (40.00%) regarded the new innovation as something good and timely. While the innovation has its strengths, it is not without weaknesses. These weaknesses led the teachers to look for better ideas or alternatives to improve on their use of the innovation. The frequent collaboration with teachers from other schools also enabled them to discuss and exchange ideas or alternatives to the innovation. These teachers felt that the innovation was too selective and limited in scope by stressing too much on the tropical region and neglecting other climatic zones. The examples given in the syllabus were also inadequate. They, therefore, tried to supplement the innovation by giving more relevant and extensive examples which will make the lesson more meaningful. Only a small group of teachers (16.67%) assessed at LoU Ivb, were focusing most of their efforts on making changes in the use of the innovation so as to bring greater impact to the students.

### Research Question 2:

What are the concerns and the levels of use of Sixth Form Geography teachers according to the variables of gender, teaching experience, and the location of the school in the implementation of the new Geography curriculum innovation?

### Relationship of SoC and LoU with Gender

Table 3 presents the mean percentile scores and the standard deviations of the SoC for Sixth Form Geography teachers' concerns grouped according to their gender. The highest mean score for the male group is at Stage 6 which



has a mean of 85.20 and a standard deviation of 10.02. The second highest score is at Stage 2 which has a mean of 83.80 and a standard deviation of 9.15. The lowest scores are at Stages 5 and 4 with means of 70.20 and 62.10 and standard deviations of 22.36 and 19.15 respectively. These two scores denote impact concerns which are relatively lower than 'self' concerns (Stages 0 to 2) and the management concern (Stage 3).

As for the female group of teachers, their highest stages of concern are Stages 1, 2 and 6 respectively. Their means (with standard deviations in parentheses) are 75.20 (15.28), 74.40 (22.67) and 69.95 (23.28) respectively. These three highest stages are similar to that scored by their male counterparts but with different intensity. The lowest scores recorded are at Stages 5 and 4 which have means of 65.50 and 49.25 and standard deviations of 21.62 and 21.86 respectively.

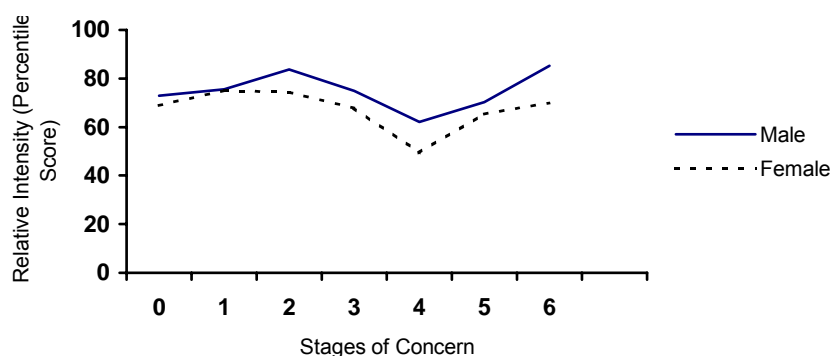
Table 3: Means and Standard Deviations of SoC Percentile Scores for Teachers according to Gender

SoC	Gender			
	Male ( <i>n</i> = 10)		Female ( <i>n</i> = 20)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
0	73.00	21.60	68.90	22.52
1	75.60	11.12	75.20	15.28
2	83.88	9.15	74.40	22.67
3	75.00	16.43	67.75	25.93
4	62.10	19.15	49.25	21.86
5	70.20	22.36	65.50	21.62
6	85.20	10.02	69.95	23.28

The profiles of the two groups, as shown in Figure 2 show high intensities in "self" concerns (Stages 1 & 2) and impact concern (Stage 6). While it may be unusual to note the high intensities in the above three stages, considering the innovation was introduced since the year 1996, it is no surprise that unresolved "self" concerns might actually lead to high "impact" concern (Refocusing). This is because while the teachers have intense concerns about what the innovation entails and uncertainties about the innovation, they think they have better alternatives to the existing innovation. The profiles of both groups of teachers also show a relatively high management concern (Stage 3). This suggests that the teachers are beginning to focus their attention on the innovation and how best to use information and resources. Issues related to efficiency, organizing, managing, scheduling and time demands are beginning to be felt by the teachers.

Both profiles also indicate rising collaboration concern (Stage 5). There is a rising concern on coordination and cooperation with other teachers regarding use of the innovation. The low consequence concern (Stage 4) displayed by both groups show a low interest in the impact of the innovation on students. This might be due to the fact that at this point in time, these teachers are more concerned on how best to use the innovation and less concerned about the effects of the innovation on their students. The group profiles of teachers' SoC by gender in Figure 2 also show a similar pattern in their concerns although the male teachers seem to have higher intensity in all their concerns when compared to their female counterpart.

Figure 2: Group Profiles of Teachers' SoC by Gender



As for the relationship between LoU and Gender, their percentage and frequency distribution is presented in Table 4. For the male group, 50.00% (5) of the subjects were assessed at LoU V (Integration) and the other 50.00% (5) at LoU VI (Renewal). As for the female group, 25.00% (5) of the subjects were assessed at LoU IVb (Refinement), 40.00% (8) at LoU V (Integration) and the remaining 35.00% (7) were assessed at LoU VI (Renewal).

Table 4: Percentage and Frequency Distribution of Teachers' LoU by Gender

Gender	Levels of Use (LoU)							
	0	I	II	III	IVa	IVb	V	VI
<b>Male</b>								
Frequency	0	0	0	0	0	0	5	5
Percentage	0.00	0.00	0.00	0.00	0.00	0.00	50.00	50.00
<b>Female</b>								
Frequency	0	0	0	0	0	5	8	7
Percentage	0.00	0.00	0.00	0.00	0.00	25.00	40.00	35.00

The results seem to indicate that both groups have progressed to higher LoU and they have the need to cooperate with other teachers for greater impact in the use of the innovation. Both groups have also developed some ideas on how to refine the existing innovation to make it more effective in their teaching.

### Relationship of SoC and LoU with levels of teaching experience

Teachers were categorized into two different levels of teaching experience in terms of number of years in the teaching profession. These two levels are (a) less than 10 years, and (b) 10 years and above. Table 5 presents the mean percentile scores and standard deviations of the SoC of these two categories of teachers. The results show that the highest stage of concern for teachers with less than 10 years of teaching experience is Stage 2 (Personal) which has a mean percentile score of 75.00 with a standard deviation of 23.20 whereas Stage 4 (Consequence) has the lowest mean score of 52.70 with a standard deviation of 24.00.

Table 5: Means and Standard Deviations of SoC Percentile Scores for Teachers with different number of years of Teaching Experience

SoC	Years of Teaching Experience			
	Less than 10 Years ( $n = 20$ )		10 Years and above ( $n = 20$ )	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
0	71.70	21.33	67.40	23.98
1	73.70	14.82	78.60	11.63
2	75.00	23.20	82.60	7.40
3	68.30	25.33	73.90	18.70
4	52.70	24.00	55.20	16.63
5	67.05	22.82	67.10	20.10
6	71.85	24.30	81.40	10.14

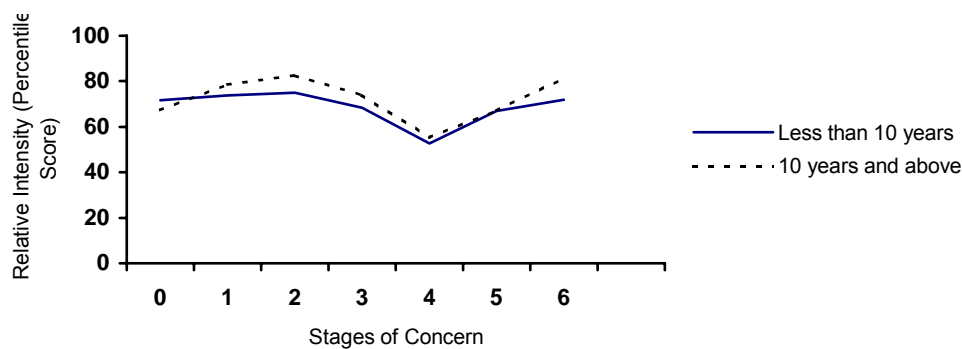
For teachers with teaching experience of 10 years and above, the highest stage of concern is Stage 2 with a mean of 82.60 and a standard deviation of 7.40 whereas the lowest two stages (Stages 5 and 4) have means of 67.10 and 55.20 with standard deviations of 20.10 and 16.63 respectively.

From Figure 3, it can be seen that teachers with less than 10 years teaching experience have higher "self" (Stages 0 to 2) refocusing (Stage 6) concerns. Their concerns for management (Stage 3) and collaboration with other teachers (Stage 5) are relatively high whereas their consequence concern (Stage 4) is low. For the teachers with teaching experience of 10 years and above, their profile shows that as they move from Stage 0 to Stage 1, their Stage 0 concern is low while their Stage 1 concern increases. This is in agreement with the CBAM's developmental nature of concerns which hypothesized that as individual's use of the innovation progresses over time, their concerns will also progress from lower to higher stages.

The CBAM also contends that lower stage concerns must be resolved or decreased in intensity as higher stage concerns are aroused. Thus, as individuals progress from lower to higher SoC, it would be reasonable to expect the self concerns (Stages 0 to 2) of experienced users to be less intense than their impact concerns (Stages 4 to 6). However, this is not the case in this study. From the profile, it is surprising to note that even though these experienced teachers have resolved their awareness concern, their

concerns for Stages 1 and 2 are still higher than that of the teachers with less than 10 years teaching experience. This suggests that their self concerns become more intense the longer they are involved with the innovation. The profiles also show that while both groups of teachers display low concerns for Stage 4, their concerns for Stages 5 and 6 are aroused.

Figure 3: Group Profiles of Teachers' SoC by Years of Teaching Experience



From the slight differences in the two groups' SoC mean percentile scores, it would be reasonable to suggest that these slight differences may not be large enough to be statistically significant. This is in line with findings from studies by Hall, George and Rutherford (1977), Johnson (1984), Poulos (1984), Bauer (1987) and Suksangsri (1987) who found that the number of years of teaching experience does not affect an individual's concerns about the innovation. Thus it would be better not to use this demographic variable of teaching experience as the basis for planning any intervention measure to help teachers resolve their 'self' concerns.

The percentage and frequency distribution of teachers' LoU by years of teaching experience is presented in Table 6. For teachers with less than 10 years teaching experience, 20.00% (4) were assessed at LoU IVb (Refinement), 50.00% (10) at LoU V (Integration), and 30.00% (6) at LoU VI (Renewal). As for the 10 years and above group, 10.00% (1) were assessed at LoU IVb, 30.00% (3) at LoU V, and 60.00% (6) at LoU VI.

The results indicate that both groups have progressed to higher LoU, that is, LoU IVb, LoU V and LoU VI. However, for the more experienced group, the majority (60.00%) were able to progress to the final stage, that is, Stage LoU VI. These teachers are actively looking for alternative ideas and ways to supplement and improve the innovation. The bulk of the teachers with less than 10 years teaching experience (50.00%) could only progress to Stage LoU V. They are still actively collaborating and cooperating with other teachers to achieve greater impact in the use of the innovation.

Table 6: Percentage and Frequency Distribution of Teachers LoU by Years of Teaching Experience

Years of teaching experience	Levels of Use (LoU)							
	0	I	II	III	IVa	IVb	V	VI
<b>&lt; 10 years</b>								
Frequency	0	0	0	0	0	4	10	6
Percentage	0.00	0.00	0.00	0.00	0.00	20.00	50.00	30.00
<b>≥10 years</b>								
Frequency	0	0	0	0	0	1	3	6
Percentage	0.00	0.00	0.00	0.00	0.00	10.00	30.00	60.00

### Relationship of SoC and LoU with location of school

The total sample of teachers was categorized into two groups according to the location of the school, that is, urban school and rural school. From Table 7, for teachers grouped under Urban School, the highest stage of concern is Stage 2 (Personal) with a mean score of 75.84 and a standard deviation of 23.21. Stage 4 (Consequence) has the lowest mean score of 57.68 and a standard deviation of 24.70.

For teachers grouped under Rural School, their highest stage of concern is also Stage 2 with a mean of 80.46 and a standard deviation of 11.25 whereas the lowest stage of concern is Stage 4 which has a mean of 46.36 and a standard deviation of 12.66.

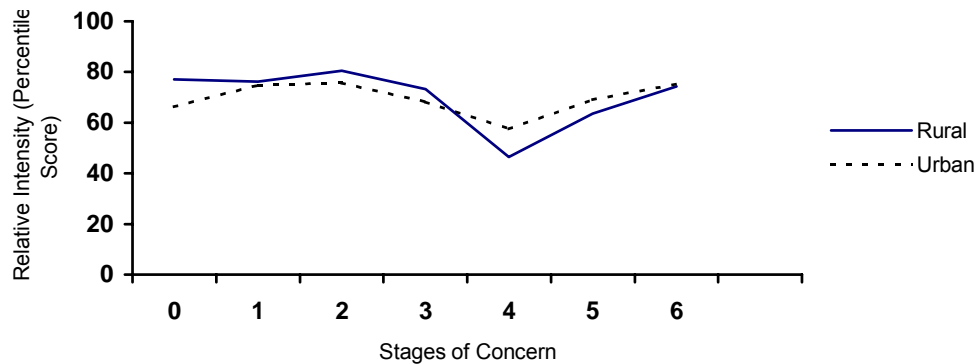
Table 7: Means and Standard Deviations of SoC Percentile Scores for teachers with different

SoC	Location of School			
	Urban School ( <i>n</i> = 19)		Rural School ( <i>n</i> = 11)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
0	66.37	23.38	77.00	18.22
1	74.84	16.34	76.18	8.54
2	75.84	23.21	80.46	11.25
3	68.37	27.01	73.27	14.99
4	57.68	24.70	46.36	12.66
5	69.11	23.27	63.55	18.87
6	75.42	24.37	74.36	14.33

As shown in Figure 4, the profiles of the two groups of teachers are almost similar in shape. However, the teachers in the rural schools have higher "self" (Stages 0 to 2) and management (Stage 3) concerns when compared to the teachers in the urban schools. This may be due to the fact that over 90% of these rural school teachers have less than 10 teaching experience. They are less concerned about the impact of the innovation on the students as shown in the low concern for Stage 4. However, from the rising Stages 5 and 6

concerns, it can be deduced that these teachers do feel the need to collaborate with other teachers in order to improve the use of the innovation.

Figure 4: Group Profiles of Teachers' SoC by Location of School



The teachers in the urban schools have relatively lower self and management concerns but higher impact concerns as compared to the teachers in the rural schools. This indicates that the teachers in the urban schools have resolved slightly their self and management concerns and at the same time, more of their impact concerns are aroused. From the slight differences in the two groups' SoC mean percentile scores, it would be reasonable to suggest that these slight differences may not be large enough to be statistically significant. Thus it would be better not to use this demographic variable of location of schools as the basis for planning any intervention measure to help teachers resolve their concerns.

Table 8 shows the percentage and frequency distribution of the teachers' LoU according to the location of the school. For the group of Urban School teachers, 16.00% (3) of them were assessed at LoU IVb (Refinement), 31.00% (6) at LoU V (Integration), and 53.00% (10) at LoU VI (Renewal). As for the group of rural school teachers, 18.00% (2) were assessed at LoU IVb, 64.00% (7) at LoU V, and 18.00% (2) at LoU VI.

Table 8: Percentage and Frequency Distribution of Teachers' LoU by Location of School

Location of school	Levels of Use (LoU)							
	0	I	II	III	IVa	IVb	V	VI
Urban School								
Frequency	0	0	0	0	0	3	6	10
Percentage	0.00	0.00	0.00	0.00	0.00	16.00	31.00	53.00
Rural School								
Frequency	0	0	0	0	0	2	7	2
Percentage	0.00	0.00	0.00	0.00	0.00	18.00	64.00	18.00

For the urban school group, the bulk of the teachers (53.00%) were at the last stage, that is, LoU VI. While only 47.00% of these teachers have teaching experience of 10 years and above, the proximity of the different urban schools enables these teachers to come together easily for discussion and sharing of ideas and resources. Most of these teachers also took the initiative to organize informal discussion sessions frequently. This may help to account for the high frequency of them at LoU VI.

As for the rural school group, the majority of the teachers (64.00%) were assessed at Stage LoU V. This depicts that there is a need for cooperation and collaboration with other teachers from other schools. This is not surprising as almost 91.00% of these teachers have teaching experience of less than 10 years. Furthermore, these teachers do not have many opportunities to attend formal group discussions organized by the State Education Department which are infrequent. Informal group discussions are rarely initiated by the teachers due to the distance between the various rural schools.

### **DISCUSSION AND IMPLICATIONS**

From the CBAM perspective, an innovation cannot be said to be “institutionalized” until teachers are at a Routine Level of Use (LoU IVa) or above and have their Informational (Stage 1), Personal (Stage 2) and Management (Stage 3) concerns relatively low in intensity. From the data reported in this study, it has been found that Integration Level of Use (LoU V) predominates even though the sample’s “self” concerns (Stages 1 and 2) have not been resolved.

Thus, in this study, teachers’ unresolved “self” concerns have not hindered them from “growing” in the use of the innovation. These findings suggest that the teachers perceived some shortcomings in the existing Geography curriculum innovation. Such shortcomings led to the need to collaborate and cooperate with other teachers to share experiences and resources. Such collaboration, in turn, gave rise to alternative ideas to try to improve and supplement the existing innovation. This helps to explain their high level of use in the innovation.

Based on the findings of the study and their implications, three types of recommendations are suggested for the improvement of the implementation of the innovation. The first deals with intervention activities to facilitate teachers’ progress in the implementation process. The second type makes suggestions on improving the organizational arrangements to facilitate the change effort while the third discusses the use of CBAM as a model for curriculum renewal in Malaysia. The first two types of recommendations are short-term in nature while the third type is useful for long-term planning of educational change in the future.

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